Wildland Fire Management Plan

Martin Van Buren National Historical Site

September 2005

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EXECUTIVE SUMMARY

The wildland fire management policies of the National Park Service (NPS) support Martin Van Buren National Historic Site's interim management goals. The overriding goal is restoration, maintenance and protection of the historic scene of Lindenwald and the associated historic cultural landscapes. Also important are providing for firefighter and public safety, protection of natural resources, and protection of human developments from unwanted wildland fire.

This Wildland Fire Management Plan contains the following program direction:

To guide the decision-making process where safety, social, political, and resource values are evaluated, and appropriate management response strategies are identified for wildland fires.

To provide a framework for fuels management strategies through the use of prescribed fire and mechanical fuel treatments.

To provide a basis from which to cooperate more fully in planning and implementing a wildland fire program across agency boundaries.

Program operations included in the plan are:

1) prevention
2) preparedness
3) suppression
4) fuels management.

Applicable resource goals and objectives are derived from approved agency resource and general management plans.

The plan is organized to combine the latest scientific knowledge, including regional and local studies, with policy direction from the National Park Service, the Departmental of the Interior, the Federal Wildland and Prescribed Fire Management Policy and Program Review (USDI/USDA 2001), and other Federal Government level wildland fire policies to accomplish resource and fire management goals and objectives. The intent of the plan is primarily operational in nature.

This plan is in compliance with the requirements found in the National Environmental Policy Act (NEPA). These requirements ensure a prudent assessment and balance between a federal action and any potential effects of that action, leading to consensus between fire managers, agency resource specialists, and the public. Any constraints or limitations imposed on the fire management program are also included.

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I.INTRODUCTION

A.The Fire Management Plan

National Park Service (NPS) wildland fire management activities are essential to the protection of human life and property, the protection and management of irreplaceable natural and cultural resources, and the accomplishment of the NPS mission. The Martin Van Buren National Historic Site (MAVA) Wildland Fire Management Plan (FMP) is the primary planning document directing park fire management activities at MAVA. These activities include prevention, preparedness planning and activities, fire staffing and training, suppression, prescribed fire, and non-fire fuels management activities to achieve management objectives.

As required by *National Park Service Management Policies*, this plan complies with the principles and policies of the *Federal Wildland Fire Management Policy and Program Review* (USDI/USDA 2001). These principles and policies were cooperatively developed by the U.S. Department of the Interior (including the NPS) and the U.S. Department of Agriculture (including the U. S. Forest Service), to use the knowledge and experience of these agencies to develop a consistently excellent fire management program on Federal lands.

This plan meets the requirement of *Director's Order-18* (DO-18); Wildland Fire Management that all park units with burnable vegetation have a fire management plan approved by the superintendent.

The MAVA wildland fire management plan has been written to be understood by the park staff, fire management staff implementing the plan, and the general public. This plan is operational in nature and is a public document.

The superintendent is responsible for assuring policy compliance and the technical and operational soundness of a fire management plan before he or she approves it. Before approving the plan the superintendent sought the review and advice of park staff, area staff, regional staff, and other fire professionals.

MAVA will review and update the fire management plan annually. Annual review is essential to ensure that the fire management plan continues to conform to current laws, objectives, procedures, and strategies. A comprehensive plan revision and National Environmental Policy Act (NEPA) compliance review are required every five years. MAVA will provide a digital copy of each approved fire management plan and all subsequent amendments to the NPS Fire Management Program Center (FMPC), located at the National Interagency Fire Center (NIFC), Boise, Idaho.

B.Collaborative Processes

This FMP was created incorporating input and advice from federal, state, and local agencies, neighboring landowners, the local community, and NPS area and regional staff. Because staffing levels at the park are very low, implementing this FMP relies on close cooperation with the local fire department and emergency services, and coordination with area and regional NPS fire management staff.

C.Policy Implementation

The MAVA fire management plan will implement federal, departmental, and NPS fire management policies and help achieve resource management and fire management goals as defined in the following documents:

1). Federal Wildland Fire Management Policy and Program Review (2001) (http://www.nifc.gov/fire_policy/index.htm)
2). Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA, 2000)

3). A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment; 10 Year Comprehensive Strategy (2001)

4). A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment; 10 Year Comprehensive Strategy Implementation Plan (2002)

5). The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide (1998)

6). Managing the Impacts of Wildfires on Communities and The Environment (2001)

7). National Fire Plan (2001)

8). National Park Service Wildland Fire Management Strategic Plan; 2003 - 2008 (2003)

9). National Park Service Management Policies (2001)

D.NEPA and NHPA Compliance

This plan meets NEPA and NHPA requirements for all activities described in the plan. The FMP incorporates a programmatic approach to NEPA that covers all activities described in the fire management plan. The FMP and the EA associated with the plan were coordinated with neighboring landowners and land management agencies and released for public review and comment. This coordination and review included scoping, public review of draft copies of the FMP and EA, review by local and state agencies, meetings with area and regional

NPS fire management staff, and public meetings. Comments from all parties were considered in preparing the draft and final FMP and draft and final EA.

Wildland fire suppression is conducted within the park as an emergency action (generally exempt from regulatory requirements of the National Environmental Protection Act (NEPA). The environmental assessment (EA) associated with this plan does consider the impacts of emergency wildland fire suppression. The evaluation and public review of theses activities will help the park to make informed choices regarding all fire management and potential fire related impacts.

Other elements of this plan associated with wildland fire suppression and prescribed fire (preparedness, non-fire fuel management, prescribed fire, burned area rehabilitation, etc.) are non-emergency actions. These activities are subject to the requirements of NEPA, National Historic Preservation Act (NHPA) and other applicable regulations.

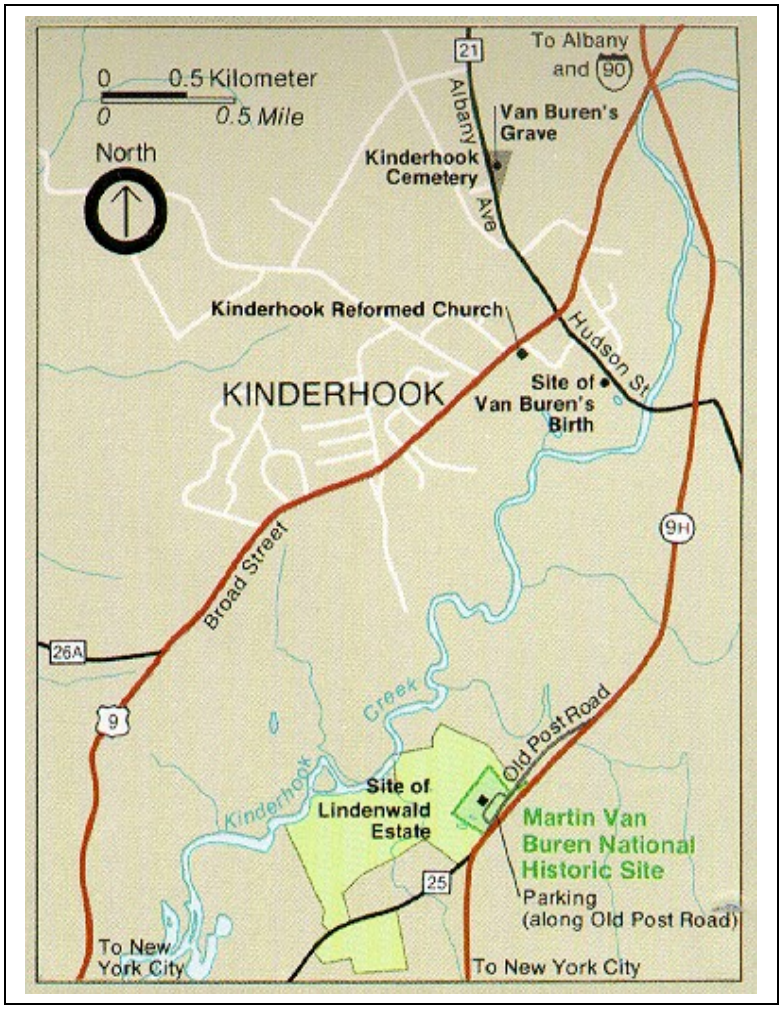
The environmental assessment prepared, as the NEPA compliance document for this plan is on file at park headquarters. The finding of no significant impact (FONSI) for this fire management plan is included in Appendix D. NHPA compliance is also documented in Appendix D.

E. Authorities for Implementing this Plan

The National Park System is comprised of more than 360 individual units administered by the NPS for their intrinsic natural, cultural, and recreational values. Three laws provide the primary authorities for administration of the National Park System, including the development and execution of this plan. Significant language in these documents is recorded in Appendix O.

- *The National Park Service Organic Act of 1916*
- The General Authorities Act of 1970
- *The National Parks and Recreation Act of 1978*
- An act of Congress in Public Laws 93-486 and 39—535 to establish Martin Van Buren National Historic Site

Figure 1: Location of Martin Van Buren National Historic Site



oric Site


SCHENECTADY
ALBANY
Troy
Albany
RENSSELAER
Watervliet
Altamont
Knox
Westmere
Voorheesville
West Sand Lake
Sand Lake
Berlin
Grafton
Pownal
BENNINGTON
Williamstown
North Adams
Adams
Middleburgh
Glenmont
East Schodack
Stephentown Center
N E W Y O R K
Rensselaerville
Westerlo
Castleton-On-Hudson
Lanesborough
Cheshire
Dalton
Pittsfield
Ravena
Coeymans
New Lebanon Center
New Baltimore
Niverville
Valatie
Richmond
MASSACHUSETTS
Lenox
Becket
Durham
Kinderhook
Chatham
Coxsackie
Windham
Cairo
Austerlitz
Stockport
Lee
G R E E N E
Hudson
Housatonic
BERKSHIRE
Greenport Center
Philmont
COLUMBIA
Great Barrington
Hillsdale
Taghkanic
Copake Falls
New Marlborough
Shandaken
Hunter Mountain
Germantown
Sheffield
Saugerties
U L S T E R
Glasco
Upper Red Hook
Weatogue
Ancramdale
West Hurley
DUTCHESS
Pine Plains
CONNECTICUT

II.LAND MANAGEMENT PLANNING AND FIRE POLICY

A.NPS Policies

1. ***National Park Service Management Policies (2001)*** is the basic Service-wide policy document of the NPS. It is the highest of three levels of guidance documents in the NPS directives system. This document is designed to provide NPS management and staff with clear information on NPS policy, required and/or recommended actions, and other information to help them manage parks and programs effectively.

   National Park Service Management Policies includes the following guidance related to the preparation of fire management plans and the management of fire on national park sites:

   > *Park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised.*
   >
   > *Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park's natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. An environmental assessment developed in support of the plan will consider the effects on air quality, water quality, health and safety, and natural and cultural resource management objectives. Preparation of the plan and environmental assessment will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments.*
   >
   > *All fires burning in natural or landscaped vegetation in parks will be classified as either wildland fires or prescribed fires. All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options. These options will be selected after comprehensive consideration of the resource values to be protected,*

firefighter and public safety, and costs. Prescribed fires are those fires ignited by park managers to achieve resource management and fuel treatment objectives. Prescribed fire activities will include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All parks will use a systematic decision-making process to determine the most appropriate management strategies for all unplanned ignitions, and for any prescribed fires that are no longer meeting resource management objectives. (NPS Management Policies, Chapter 4.5).

There may be situations in which an area may be closed to visitor use to protect the natural resources (for example, during an animal breeding season) or for reasons of public safety (for example, during a wildland fire). Such closures may be accomplished under the superintendent's discretionary authority, and will comply with applicable regulations (36 CFR 1.5 and 1.7). (NPS Management Policies, Chapter 4.1).

2. **Directors Order #18 and Reference Manual #18** are the second and third levels of NPS guidance documents (under *NPS Management Policies*). Directors Orders provide operational policies and procedures that support and supplement management policies. Directors Orders are often further supported with a third level of guidance consisting of reference manuals or handbooks. Specific guidance on wildland fire is contained in *Directors Orders#18 (DO-18)* and attendant *Reference Manual #18 (RM-18)* for the NPS, and "*The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide" (1998).*

   Director's Order #18; Wildland Fire Management and *Reference Manual #18; Wildland Fire Management* are the documents that provide NPS sites with specific guidance on the preparation of wildland fire management plans and on wildland and prescribed fire management. *Director's Order 18* (DO-18) states:

   Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet resource management objectives prescribed for the various areas of the park and to ensure that firefighter and public safety are not compromised. Each park with vegetation capable of burning will prepare a fire management plan to guide a

> *fire management program that is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities.*

The NPS is committed to protecting park resources and natural ecological processes; but firefighter and public safety must be first priority in all fire management activities.

Reference Manual #18 (RM-18) states the paramount considerations of each park fire management program will be:

1. Protection of life, both employee and public
2. Protection of facilities and cultural resources
3. Perpetuation of natural resources and their associated processes
4. Perpetuation of cultural and historic scenes.

These priorities are further emphasized in *RM-18 (Chapter 3, Page 1*) with the following language:

> *Safety is the responsibility of everyone assigned to a wildland or prescribed fire incident. The safety of employees and visitors alike must be of prime concern during fires. Agency administrators at all levels need to stress that firefighter and visitor safety always takes precedence over property and resource loss*.

B.Martin Van Buren National Historic Site Enabling Legislation and Purpose

MAVA was established by act of Congress in Public Laws 93-486 and 39—535, which states: "…to conserve unimpaired for future generations the home of Martin Van Buren, America's eighth President." The NPS mission is to preserve President Van Buren's Lindenwald farm; a museum collection which includes his personal belongings and associated items; and the landscape and historic vistas of the surrounding property.

C.MAVA General Management Plan

The main function of a general management plan (GMP) is to identify desired resource conditions and visitor experiences to be achieved by the park over a 10-20 year period. The desired resource conditions and visitor experiences ultimately determine the strategies, programs and actions the park will utilize.

All parks within the national park system are required by law to operate under approved general management plans. This ensures that park managers carry out

the mission of the NPS and the individual park unit as effectively and efficiently as possible.

The general management plan provides a foundation to guide and coordinate all subsequent park planning and management. Other park planning documents, including fire management plans and resource management plans, must follow the management direction of the GMP.

MAVA is in the process of developing a general management plan (GMP). An internal scoping and planning meeting has identified park management and resource management goals and objectives that have been incorporated into this plan.

Until the completion of the GMP, the park has developed the following four goals to provide management guidance and to ensure that the park has a clearly defined direction for resource protection and visitor use:

- To work concurrently with local communities to protect the integrity of the historic cultural landscape and immediate historic scene of Lindenwald, and to contribute to a broader efforts to preserve the historic and scenic richness of Columbia County.

- To work with the "Friends of Lindenwald," a public park-support group that contributes constituency support and funding for a variety of park goals.

- To use the general management planning process to determine how most appropriately to complete basic aspects of park development including visitor facilities, museum storage, office space and a maintenance facility.

- To ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity and quality of park facilities, services and appropriate recreational opportunities.

D.MAVA Resource Management Plan

The park presently does not have a resource management plan (RMP). Until a plan is completed the park will manage to restore and preserve the historic landscape using the following fire management objectives:

- Manage wildland fires, considering the resource values to be protected and firefighter and public safety.

- Maintain, and where appropriate rehabilitate, historic landscapes and viewsheds within the park to the 1839-1862 period.

- Use prescribed fires to achieve management and resource objectives and monitor the effects of the prescribed fire program to provide information on whether specified objectives are met.

- Use non-fire mechanical treatments to manage hazard fuels to protect park structures and adjacent properties.

- Control the proliferation of invasive species and encourage the growth of desirable native species in locations that are appropriate and practicable.

- Prevent human caused wildland fires.

E. Meeting GMP and RMP Goals Through the FMP

Implementation of the FMP will help meet the goals of the draft GMP and RMP by:

- Contributing to the preservation and rehabilitation of historic landscapes.

- Protecting historic, cultural, and natural resources.

- Ensuring human health and safety throughout fire management activities.

The fire management plan is a detailed program of action to implement fire management policies and objectives.

III. WILDLAND FIRE MANAGEMENT STRATEGIES

All fires that are not ignited by park managers for specific purposes are defined as wildland fires. All wildland fires will receive management actions appropriate to the safety of firefighters and the public, the resources and values to be protected, the condition of fuels, current and predicted fire behavior, weather, and topography to accomplish the specific objectives for that individual fire. These management actions, termed "appropriate management responses (AMR)", will vary from fire to fire and may vary within an individual fire. Fires ignited by park managers for specific purposes are called as prescribed fires. They are ignited to achieve predefined (prescribed) objectives when fuel, weather, and staffing satisfy conditions that allow safe and effective use of fire.

A. General Management Considerations

The primary goals of the wildland fire management program at MAVA are the protection of human health and safety, cultural, historical, and archeological resources, real property, and natural resources. To accomplish these goals, wildland fires at MAVA will be managed through suppression strategies. Fire managers will balance the potential impacts of wildland fire with the potential impacts of fire suppression activities in choosing the appropriate management response.

Important values to be protected at MAVA include the primary resources of the park. These include the cultural landscapes (and the natural resources of which they are composed), historic structures, and archeological sites. Values to be protected also include natural resources and processes, natural levels of biodiversity, sensitive species, including grassland birds, and their habitats, and historical and archeological resources. Values to be protected and their susceptibility to damage or loss by fire are discussed in more depth in the description of the fire management unit (Section III.C. of this plan).

Wildland fires and prescribed fires at MAVA are managed with the support of local community fire departments. This community-based approach to wildland and prescribed fire management involves partnership, cooperation and collaboration between the Stuyvesant Volunteer Fire Department, New York State Department of Environmental Conservation, other neighboring fire management agencies and the park.

Additional fire planning support and collaboration is provided by the NPS North Country Area fire management officer (Area FMO). The Area FMO provides technical assistance to the park on all fire management matters, including the National Fire Danger Rating System (NFDRS) and fire management programs such as the Weather Information Management System (WIMS), the NPS wildland fire computer system, FIREPRO budgeting, and fire program analysis (FPA). The Area FMO also assists with the wildland fire qualification and certification program, coordination of fire training, development of cooperative agreements with local and state agencies, administration of Rural Fire Assistance Program (RFA) grants to local fire departments, and developing preparedness, suppression, and prescribed fire operational plans.

The park, in accordance with NPS policy, will use minimum impact suppression tactics (MIST) in all fire management activities. MIST is defined as the application of techniques that effectively accomplish wildland fire management objectives while minimizing the impacts to cultural and natural resources commensurate with ensuring public and firefighter safety and effective wildland fire control. Examples of MIST include using existing natural or constructed barriers to contain wildland fires, mowing firebreaks in grassland, and using pumps and hoses to apply water to suppress fire and reduce fire spread.

B. Wildland Fire Management Goals

The wildland fire management goals of MAVA are:

> **Goal 1:** Maintain firefighter and public safety. Firefighter and public safety is the highest priority of every fire management activity.

Goal 2: Manage fire and fire suppression activities to protect public health and safety, real property, and the archeological, cultural, historic, and natural resources of the park.

Goal 3: Use prescribed fire and non-fire methods and treatments to meet resource management objectives, protect park resources and reduce wildland fire hazards around developed areas and areas adjacent to cultural and historic sites.

Goal 4: Comply with federal, state, and local air quality regulations and preserve park viewsheds.

Goal 5: Where resources are damaged by wildland fire or fire management activities; monitor, stabilize and prevent further degradation of resources.

Goal 6: Use information gained through inventory and monitoring to evaluate and improve the fire management program and conservation of park resources.

Goal 7: Integrate fire management with all other aspects of park management.

Goal 8: Maximize efficiencies in the fire management program through interagency coordination and cooperation.

Goal 9: Educate employees and the public about the scope and effects of wildland and prescribed fire.

These goals provide the programmatic direction for the wildland fire program. The goals are derived from direction provided in the park's interim GMP goals. The MAVA wildland fire management goals reflect Federal fire policy, the core principles and goals of the *Comprehensive Strategy, and Cohesive Strategy* where supported by land and resource management plans. The goals also contribute to accomplishing the *National Park Service 10-year Comprehensive Fire Strategy (NPS, 2000*). This strategy outlines goals and actions in four fire management program areas: oversight and accountability, fire preparedness, fire operations, and fire protection capabilities of rural fire districts.

C. Wildland Fire Management Options

Implementation of all wildland fire suppression and prescribed fire will follow the guidelines of the *Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide*.

The following wildland fire management options are available for use in the park:

1.Wildland Fire Suppression

Historically, MAVA has suppressed all wildland fires. Under this plan, the park will continue to suppress all wildland fires.

All suppression actions will use the most appropriate management response (AMR) available. These management responses range from aggressive suppression using all available firefighting resources to actively monitoring fires to ensure appropriate containment.

An AMR will be picked through analysis of the local fire situation, values-to-be-protected, management objectives, external concerns, and land use. When selecting an appropriate management response, incident commanders will consider factors including protection of firefighter and public health and safety, threats to real property on and adjacent to park lands, protection of park resources, use of minimum impact suppression tactics (MIST), cost effectiveness, and availability of fire suppression resources (staff and equipment).

Because fire, fuel, and resource conditions will vary within the fire perimeter, in the area surrounding the fire, and across time, more then one management response may be used to suppress a single fire event. The effectiveness of the selected management response(s) will be evaluated regularly during the suppression action.

A Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires (http://www.nifc.gov/fire_policy/wfip_form_2005.doc). The incident commander will be responsible for completing a WFIP. The WFIP process will begin with a Stage I: Initial Fire Assessment and continue with additional stages as appropriate under NPS guidelines. The WFIP documents the current and predicted fire situation, documents all appropriate administrative information, and provides a decision framework for selecting the appropriate management responses.

2.Prescribed Fire

Prescribed fires are fires ignited by park managers to achieve resource management objectives or fuel treatment objectives. All prescribed fire projects will have a burn plan approved by the superintendent. Each burn plan will be prepared using a systematic decision-making process, and contain measurable objectives, predetermined prescriptions, and using an approved environmental compliance document. Prescribed fire burn plans define the strategic purpose, goals and objectives for the project, and include specific prescriptions for weather and fuel conditions, staff and equipment, and other criteria that must be in place to execute the prescribed fire project.

Prescribed fire is a critical component of the park's historic landscape rehabilitation and maintenance program and the park's natural resource management program. It may be used to maintain and rehabilitate areas of the historic landscape, control invasive plants in fields, to maintain grasslands, and reduce fuel loading.

The primary park management objectives that relate directly to prescribed fire include:

- Conduct all wildland fire and prescribed fire operations so that they cause no injuries to the public and limit injuries to firefighters consistent with NPS strategic plan goals for employee safety.

- Ensure prescribed fire operations are conducted in accordance with NPS policy, guidelines, and within the prescriptions described in burn unit specific prescribed fire plans.

- Maintain and rehabilitate park fields, meadows, and historic landscapes through the application of prescribed fire and other techniques.

- Identify, manage and, where appropriate, reduce hazard fuels through prescribed fire or mechanical means.

Natural resource management objectives for prescribed fire use in grassland areas include:

- Reduce all woody stems by 70-90%

- Reduce non-native species by 20-40%

- Increase native herbaceous species by 20-50%

These natural resource objectives support restoration of natural levels of biodiversity, control of exotic species, and restoration of grassland bird nesting and foraging habitat. Other prescribed fire management goals and objectives that may involve prescribed fire are listed in the fire management objectives (Section III.D.1.b.) of this plan. All prescribed fire strategies and prescribed fire application flows from these goals and objectives.

3.Wildland Fire Use

Wildland fire use is the management of naturally ignited (*e.g.* lightning caused) wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas. Due to the small size of the park, the close proximity of adjoining properties, the lack of

on-site fire management personnel and the lack of natural fire ignitions, wildland fire use will not be used at the park.

4.Non-Fire Applications

Non-fire applications are manual and mechanical activities that are used to control fire activity (intensity, duration, presence/absence, etc.) without the use of fire. Examples of non-fire applications include creation of fuel breaks around structures, removing dead and downed wood, and mowing buffers around trails and roadways. Non-fire applications are elements of the integrated fire control and landscape rehabilitation and maintenance programs at MAVA.

Non-fire applications for fire control and preparedness used at MAVA include, but are not limited to mowing, cutting woody vegetation, limbing trees, chipping slash and woody debris, removing burnable vegetation and other organic materials, and use of herbicides.

Non-fire applications are a critical component of the park's fire, historic landscape conservation, and vegetation management programs.

D.Description of Wildland Fire Management Strategies by Fire Management Unit

1.MAVA Fire Management Unit

A fire management unit is any land management area definable by objectives, management constraints, topographic features, access, values-to-be-protected, political boundaries, fuel types, major fire regime groups, or other factors that set it apart from management characteristics of an adjacent unit or other units. Because the fuel types and fire management objectives are similar throughout the park, the entire park is managed as a single fire management unit (FMU) and is designated as the MAVA FMU.

The MAVA FMU is located in Columbia County in upstate New York (latitude 43 00', longitude 73 38'), along the edge of the Albany-Troy-Schenectady metropolitan area. The park is rural in character and farming is the major use of the park's adjacent lands. The location and topography of the park are depicted on the Stottville USGS quadrangle map. The MAVA FMU comprises 38.50 acres.

Figure 3: Fire Management Unit Map

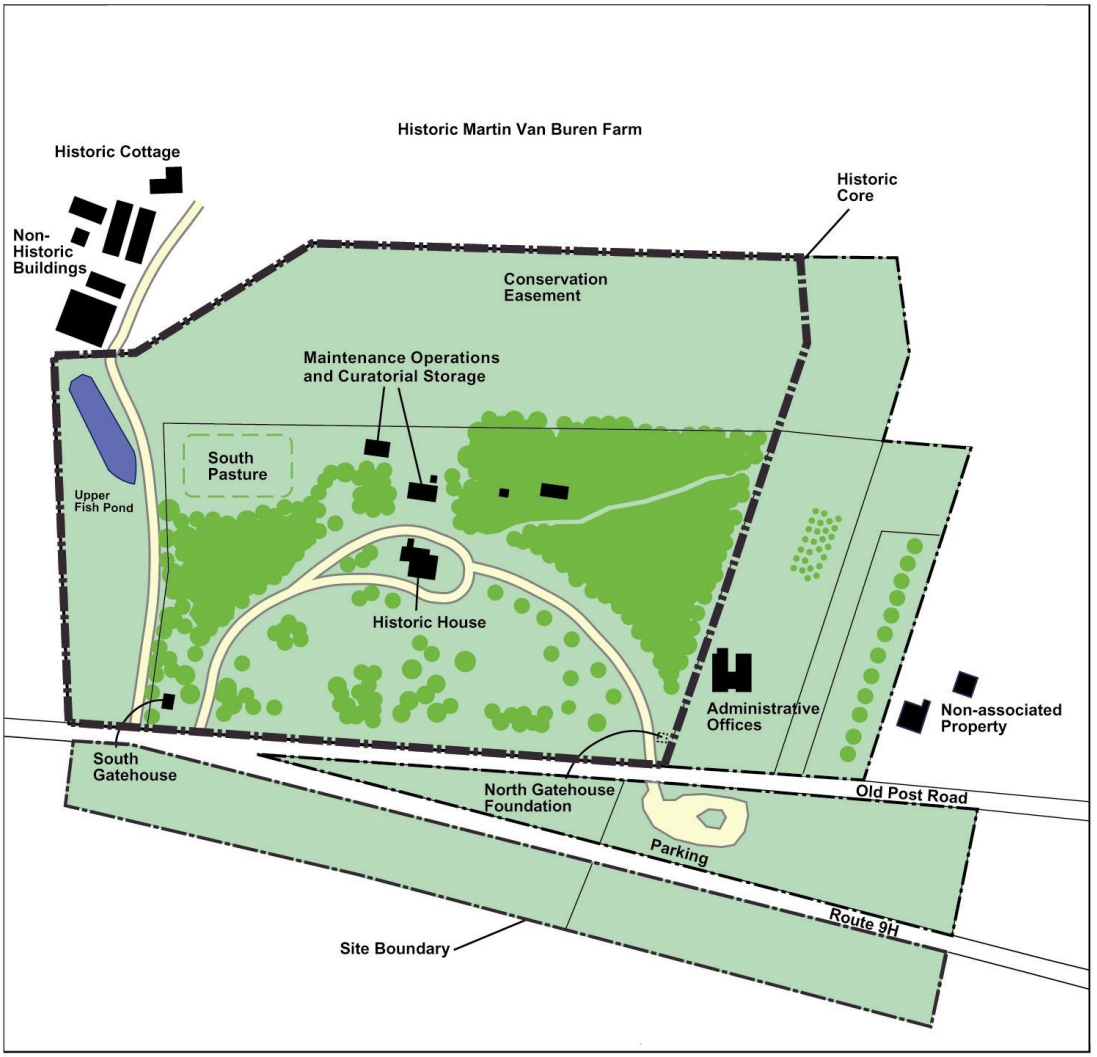


Figure 2

Existing Conditions
Environmental Assessment

Martin Van Buren National Historic Site
Kinderhook, New York

National Park Service
United States Department of the Interior

March 2000

Global Information Systems (GIS) data describing the fire management unit is maintained by the park resource manager and the regional GIS

Specialist. GIS data layers include vegetation, topography, soils, and hydrology.

1. Physical and Biotic Characteristics of the Park Unit

a. Vegetation

The park is located at the northern limits of the broadleaf and mixed coniferous middle latitude forest. MAVA's geographic location and long history of human occupation has resulted in a wide variety of native and exotic plant species. A formal vascular plant inventory for the park is presently being conducted.

The land cover at MAVA is composed of a mosaic of forests, meadows, and croplands.

Gypsy Moth (*Lymantria dispar)* and the fungus (*Ophiostoma ulmi)* that causes Dutch Elm disease are forest pests at MAVA. Because of the activity of these pests, there are increased numbers of highly stressed trees, trees with multiple dead limbs, and standing dead wood that may serve as ladder fuels. Surface fuel loading is increased by shed twigs, branches, and fallen trees.

Agricultural use of some lands within MAVA takes place under special use permits. The agricultural use is permitted as a management tool to maintain the historic landscape. This use also contributes to the local economy and builds connections with local communities.

b. Topography

The park is generally flat with gentle sloping toward Kinderhook Creek. Elevation at park headquarters is 265 feet above sea level with the elevation of the remainder of the park ranging approximately between 200and 300 feet.

c. Geology

The Appalachian Valley and Ridge Province, a belt of sinuous ridges that curves northward through Virginia and most of Pennsylvania. Here the carpet of sedimentary rock was buckled into tight folds during the last Appalachian mountain-building episode. Farther southeast is the Great Valley, a lowland created largely by groundwater and surface water slowly dissolving the carbonate bedrock. This valley merges northeastward with the one occupied by the Hudson River and Lake Champlain. Southeast of the Great Valley is the hilly Piedmont Province. The Piedmont passes northward through the Hudson Highlands and merges with the hilly and mountainous New England Province and with the Taconic Mountains along the eastern New York border. The basement rocks that make up the Piedmont extend eastward beneath the younger sedimentary layers of the Atlantic Coastal Plain and the continental shelf. Immediately southeast of the Hudson Highlands are the Newark Lowlands. These lowlands formed on layers of sedimentary and volcanic rock of Triassic-Jurassic age. The northeastern end of the lowlands is bounded by the Palisades, a striking rampart on the west side of the lower Hudson River.
http://gretchen.geo.rpi.edu/roecker/nys/nys_edu.pamphlet.html

d. Aquatic Resource

Surface water resources in the park include the upper fish pond adjacent to the privately owned farm access drive on a NPS conservation easement. The pond is currently used for irrigation purposes by the farm and is fed by a natural spring on the house lot. On the other side of the access drive is a small pond that was created when the access drive was built. A culvert runs under the access drive connecting the small pond with the upper fishpond.

Kinderhook Creek is located a short distance to the west of the current site boundary. It is a small, freshwater stream that flows in a southwest direction. The park does not currently possess any lists of aquatic flora or fauna within the existing park boundary. There is extensive frontage on the Kinderhook Creek in the proposed boundary adjustment to the park. The Hudsonia Institute had indicated that there are some rare species along the creek.

e. Air Quality

The Clean Air Act (42 USC 7401 et seq.) requires that federal land managers protect air quality. *National Park Service Management Policies* directs parks to analyze potential impacts to air quality during park planning (see the environmental assessment associated with this plan).

States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Protection Agency. These standards have been established for several pollutants: inhalable particulate matter, sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. The New York State Department of Environmental Conservation is the agency responsible for regulating and permitting the release of smoke from prescribed fires on lands administered by the NPS within the State of New York. Wildland fire is an unplanned occurrence and is not subject to permitting.

MAVA is in a Class II air quality area. By law, air quality in Class II areas must be maintained within national air quality standards. States may permit moderate amounts of new air pollution as long as neither ambient air quality standards, nor the maximum allowable increases over established baseline concentrations are exceeded. Air quality in Columbia County (and so, the park) complies with national ambient air quality standards for carbon monoxide, nitrogen oxide, particulate matter, and lead, but is in marginal non-attainment for ozone.

MAVA may release smoke from prescribed fires to achieve resource objectives. These releases will require permitting by the state of New York and may not cause exceedance of national air quality standards. All prescribed fire activities will comply with the terms of the permit.

Minor localized and temporary decreases in air quality and visibility due to smoke will occur with prescribed fire. These decreases are very short lived and are not considered likely to create significant impairment of local or regional air quality. Smoke released from fire use and management at MAVA does not create a measurable rise in national ambient air quality criteria pollutants or an exceedance of national ambient air quality standards.

f. Wildlife

Presently there is not a list of plant or animal species found at MAVA or the surrounding area.

g. Archeological Resources

MAVA contains a wealth of known archeological resources. The large number and wide distribution of these resources makes it highly likely that many more undocumented archeological resources ranging from isolated artifacts to complex archeological sites are present in the park.

Many archeological sites, artifacts, and other archeological resources lie within the top 6 inches of the soil at MAVA. Given expected mild fire behavior in the park, direct fire effects on archeological resources are not expected to be significant. Exceptionally hot or sustained fires could impact some archeological resources.

Archeological resources and their context are easily destroyed by soil disturbance. Significant direct impacts (disturbance, breakage, removal from context, etc.) and indirect impacts breakage or destruction due to soil compaction, soil disturbance, post-fire erosion, etc., to archeological resources from fire suppression activity are possible. Activities such as the construction of "hand line", the use of heavy equipment to construct fire lines or manipulate fuels, and other similar activities have a high likelihood of damaging archeological resources.

A resource advisor from park and/or regional staff will be available to apprise the incident commander of the potential impacts of fire management activities on archeological resources.

h. Historic Structures

The Van Buren mansion, *Lindenwald*, is the park's centerpiece and became a National Historic Landmark on July 4, 1961. Public Law 93-486 established Martin Van Buren National Historic Site on October 26, 1974, "….to preserve for the benefit and inspiration of the people of the United States of America."

The Site's nomination for the National Register of Historic Places highlights Lindenwald's architectural merit. Originally built in 1797 as a commodious Federal house, Van Buren substantially remodeled the house in 1849 in a

Gothic/Italianate style. Van Buren hired the famous 19th century architect Richard Upjohn to remodel the house with modern technological features such as indoor plumbing and central heating.

i. Real Property

The park contains a variety of real property resources. These include historic, non-historic NPS buildings, paths, roads, and equipment, and on adjacent lands a number of privately owned facilities and developments.

The park will make a good faith effort to protect real property within and adjacent to the park from fire originating within the park and other fires that pass through the park. This effort will be informed by the park's primary fire management goals, the protection of human health and safety and the protection of primary park resources.

j. Adjacent Properties

Properties adjacent to the park contain a variety of real property, historic, and natural resources. These include historic and non-historic buildings, bridges, trails, roads, and equipment owned by private individuals, non-government organizations, and the State of New York.

Although the park presently encompasses 38.5 acres, much of the cultural landscape and adjacent lands are conservation land. Some of the conservation land is open to the public. Most of the adjacent lands retain a very high degree of integrity to the period of President Van Buren's residence. This serves to add environmental and historic context visitors concerning the life and lifestyle of Martin Van Buren.

The park will make a good faith effort to protect lands adjacent to the park from fire originating within the park and other fires that pass through the park. This effort will be informed by the park's primary fire management goals, the protection of human health and safety and the protection of primary park resources.

2. FMU Fire Management Objectives

The entire park is designated as a single fire management unit (FMU) with a single set of FIRE management goals and objectives applying to the entire park. These goals and objectives are:

Goal 1: Maintain firefighter and public safety. Firefighter and public safety is the highest priority of every fire management activity.

Objective: Conduct 100% of wildland fire and prescribed fire operations so that they cause no injuries to the public and limit injuries to firefighters consistent with NPS Strategic Plan goals for employee safety.

Goal 2: Manage fire and fire suppression activities to protect public health and safety, real property, and the archeological, cultural, historic, and natural resources of the park.

Objective: Conduct 100% of preparedness activities, detection, initial attack and, when necessary, additional suppression activity to limit all wildland fires to less then 5 acres.

Objective: Utilize MIST principles in 100% of wildland fire suppression operations where doing so will not compromise firefighter or public safety, resources to be protected, or effective fire management and control.

Objective: Prevent damage to 100% of the highly sensitive values-to-be-protected that are located more then 50 meters outside the perimeter of any wildland fire at the time of initial attack when this can be accomplished without compromising firefighter or public safety.

Objective: Manage suppression actions so that rehabilitation costs are less than 25% of suppression costs.

Objective: Ensure 100% of wildland fire operations are conducted in accordance with NPS policy and guidelines.

Goal 3: Use prescribed fire and non-fire methods and treatments to meet resource management objectives, protect park resources and reduce wildland fire hazards around developed areas and areas adjacent to cultural and historic sites.

Objective: Ensure 100% of prescribed fire operations are conducted in accordance with NPS policy, guidelines, and within the prescription described in the prescribed fire plan for the burn unit.

Objective: Where applicable, maintain and rehabilitate 100% of park fields, meadows, and historic landscapes through the application of prescribed fire and non-fire techniques.

Objective: Identify, manage and, where appropriate, reduce 100% of hazard fuels through prescribed fire or mechanical means.

Goal 4: Comply with federal, state, and local air quality regulations and preserve park viewsheds.

Objective: Ensure that 100% of prescribed fire activities are conducted so that National Ambient Air Quality Standards thresholds are not exceeded in the region and overall visual quality is not compromised in adjacent air sheds.

Goal 5: Where resources are damaged by wildland fire or fire management activities; monitor, stabilize and prevent further degradation of resources.

Objective: Monitor 100% of wildland and prescribed fire sites in accordance with NPS standards.

Objective: When monitoring reveals resource damage, take timely and appropriate action in 100% of the cases to stabilize the resource and prevent further degradation.

Goal 6: Use information gained through inventory and monitoring to evaluate and improve the fire management program and conservation of park resources.

Objective: Monitor 100% of wildland and prescribed fire sites in accordance with NPS standards.

Objective: Collect and enter data on 100% of wildland and prescribed fires into national fire records databases in accordance with NPS fire management policy.

Objective: Review 100% of wildland fires and prescribed fires in accordance with NPS policy.

Objective: Use 100% of the information gathered in the objectives above to inform, and, when appropriate, make changes in the fire management plan, prescribed fire burn plans, and fire management activities.

Goal 7: Integrate fire management with all other aspects of park management.

Objective: Consider wildland fire management and prescribed fire use in 100% of appropriate park planning activities.

Objective: Provide 100% of park staff with basic information on fire effects, fire use and management, wildfire prevention, and the park fire situation as part of the annual preparedness program and public fire education program.

Objective: Ensure that 100% of park staff with fire management responsibilities and 100% of park staff authorized to do so by their supervisor, the park fire management coordinator, and the superintendent receive sufficient fire management training to bring them to the appropriate level of certification and to maintain that certification.

Goal 8: Maximize efficiencies in the fire management program through interagency coordination and cooperation.

Objective: Develop and maintain cooperative agreements with100% of the appropriate local, area, regional, and state fire management organizations.

Objective: Review 100% of fire management cooperative agreements annually to ensure that they are consistent with management and resource management goals.

Goal 9: Educate employees and the public about the scope and effects of wildland and prescribed fire.

Objective: Ensure that 100% of MAVA employees are able to provide basic fire information to visitors or direct them to a park employee who is able to provide it.

Objective: Ensure that when fire danger is very high or extreme or when fires are burning in the park that at least 70% of park visitors receive a fire prevention message or information on the park fire program through signage, handouts, interpretive activities, or personal contact.

Objective: 95% of property owners immediately adjacent to the park will be informed of the park's prescribed fire program and approximate burn schedule annually.

3. Management Considerations

Management considerations to operational implementation fall into four general categories:

- Health and safety (firefighter and public)
- Resource protection
- Maximum manageable area limits
- Fire management outside of park boundaries

These issues are discussed in more detail below.

a. Health and Safety

(a)Firefighter Health and Safety

The NPS fire training program and the qualification and certification process are the foundations of the NPS fire safety program. Department of the Interior policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). The NPS wildland fire qualification system meets or exceeds all NWCG standards. Only fully qualified personnel will be assigned fire management duties (unless assigned as trainees under the supervision of fully qualified personnel).

Fireline operations personnel including emergency hire firefighters engaged in fireline operations must have completed the required NWCG basic wildland firefighter training, including modules on firefighting skills, fire behavior, standards for survival, and fire shelter deployment.

Annually, all NPS firefighting personnel will receive at least eight hours of safety refresher training and complete the work capacity test at the fitness level required for the wildland fire positions for which they're qualified.

All firefighting personnel will be equipped with the proper personal protection equipment (PPE) as defined in RM-18, Chapter 13 and the NPS Wildland Fire Qualification System Guide.

Firefighting is an inherently dangerous job. To minimize the level of danger firefighters are exposed to, firefighters and the incident command team must be aware of site-specific risk factors.

A number of site-specific risk factors exist at MAVA that could impact firefighter heath and safety. Fire management staff should ensure that all fire personnel are briefed on these conditions. A number of significant risk factors are discussed below. This is not a comprehensive listing of all risk factors found within the park.

Fire managers should be familiar with issues concerning each of the risk factors listed below and how to mitigate threats these factors may pose to firefighter health and safety. Incident commanders and fire safety officers should contact park staff for additional information on site-specific hazards as needed.

(i)Stinging and biting invertebrates

Stinging and biting invertebrates including ticks, mosquitoes, bees, wasps, ants, spiders and centipedes are common native species at MAVA. Stings and bites from these animals can cause reactions that range from minor itching and swelling to life threatening allergic reactions. Use of repellents, protective clothing, and avoidance are generally effective in mitigating risks from stings and bites.

(ii)Vector-bourn diseases

A number of diseases carried by invertebrate vectors (animals that harbor a disease) are known to occur at MAVA. These diseases include Lymes Disease (carried by deer ticks and mammals) and West Nile Virus (carried by mosquitoes and birds).

Risk of contracting these diseases can be significantly reduced by use of insect repellent, wearing protective clothing, and conducting daily self-examinations for ticks. Firefighters should be briefed on the occurrence of these diseases and how to reduce the risk of contracting them.

Rabies is commonly carried by bats and occasionally by other mammals. Firefighters should not handle wildlife or animal carcasses without proper training, personal protective equipment, and specific permission from the incident command team.

(iii)Hazardous Plants

Poison ivy is common at MAVA. Poison oak may also be found at MAVA. Irritating oils on the leaves and in the sap

of these species commonly cause contact dermatitis (rash, itching, etc.) with onset of symptoms beginning several hours after coming into contact with the plant. Symptoms can range from mild dermatitis to systemic allergic reactions.

Avoiding contact with these plants is the most effective method of preventing all health impacts. If skin contact occurs, wash the exposed area with warm soapy water as soon as possible. Wash all clothing that comes in contact with these plants to avoid plant oils trapped on clothing. Avoid smoke from burning poison ivy and burning poison oak (see below).

(iv)Smoke

Smoke is an unavoidable hazard when fighting wildland fires and conducting prescribed fire operations. Smoke is a complex mixture of fine particulates and gasses created by burning materials. The composition of smoke varies depending on the material being burned and the temperature at which it is burning.

All smoke has the potential to impact human health due the inhalation of particulates, the inhalation of combustion gasses, and the reduction of available oxygen in smoke filled air. Smoke from fires burning plants containing irritating or toxic chemicals, hazardous materials, plastics, or other similar fuels can be particularly dangerous.

Smoke from fires burning in poison ivy or poison oak often carry the unburned oils from these plants. Inhaling smoke containing these irritating oils can cause potentially fatal reactions tissues in the respiratory tract (lungs, bronchi, trachea, mouth, sinuses, and nose) swell and prevent normal breathing. Skin contact with smoke containing these oils can provoke allergic reactions that can incapacitate firefighters for weeks. Firefighters should avoid smoke from fires burning in poison ivy and poison oak whenever possible.

(v)Steep Slopes

Firefighters should be aware of the effect of slope on fire behavior. Fires on steep slopes frequently have higher flame heights, spread rates, and intensities then fires on flatter terrain.

(vi)Open Water

Open water is present in Kinderhook Creek and a number of ponds in and around MAVA. Extra care should be taken to avoid steep banks and canal edges, slippery rocks, areas with strong currents, and other hazardous areas. Care should be taken around all open waters to avoid drowning.

(b)Public Health and Safety

The primary management concerns relating to public health and safety and the park fire management program are smoke impacts, community resources, fire exceeding maximum manageable area limits, and managing fires outside of park boundaries that threaten park resources.

(i)Smoke

Smoke is associated with all fires. The primary public health threat from smoke at MAVA is from reduced visibility on roadways in and adjacent to the park. When smoke from fires threaten to create dangerous circumstances on local roadways, park staff will make a good faith effort to work with local public safety agencies to facilitate the safe passage of vehicles and pedestrians.

Individuals with asthma, emphysema, or other respiratory disease may suffer some respiratory distress in smoky air. The short-term nature of most fires at MAVA and the fact that smoke tends to disperse rapidly at distance from the fire creates natural limits on these health risks.

Because of the small size of most prescribed fires within the park, the relatively low intensity of the fires, and the limited amount of smoke that is typically generated, smoke from prescribed fire should not create a significant human health or environmental threat at MAVA. The park ensures this by considering federal and state air quality requirements in developing implementation plans.

Wildland fires burning at periods of very high or extreme fire danger have the potential to generate very large volumes of smoke. These extremely unusual fires could create a short-term threat to individuals with compromised respiratory health (asthma, emphysema, etc.). The park will make a good faith effort to control smoke from wildland fires as part of its wildland fire management program.

(ii)Community Resources

A primary goal of the park's wildland fire program is the protection of community resources. All fire preparedness, prescribed fire, and suppression activities will be informed by this goal. Community resources will be protected by:

- Ensuring that only qualified personnel conduct fire management activities.
- All prescribed fire is conducted within the parameters set out in the prescribed fire burn plan.
- Ensuring fire resources from the surrounding communities are not committed to other operations before initiating a prescribed fire.
- Ensuring that real property on within the park, within in-holdings and adjacent to the park are protected from fire impacts.

b. Resource Protection

The primary management consideration for wildland fire management at MAVA is the protection of cultural, historical, and archeological resources. Protection of real property and natural resources is also a significant management consideration. To protect these resources fire managers will balance the potential impacts of wildland fire with the potential impacts of fire suppression activities in choosing the appropriate management response.

Important values to be protected at MAVA include the primary resources of the park. These include the cultural landscapes (and the natural resources of which they are composed), historic structures, and archeological sites. Values to be protected also include natural resources and processes, natural levels of biodiversity, sensitive species, including grassland birds, and their habitats, and historical and archeological resources.

These resources and values to be protected are best protected by limiting ground-disturbing activities, avoiding soil compaction over archeological sites, and maintaining vegetative cover on steep slopes. These measures will be considered in all fire planning, fire suppression, and fire use activities.

c. Maximum Manageable Area Limits

Maximum Manageable Area (MMA) limits are set for all fires during the wildland fire implementation plan process (suppression) and the prescribed fire burn plan process (prescribed fire). MMAs are set based on safety considerations, current and projected fire behavior, management objectives, and values to be protected.

The park will make a good faith effort to limit the extent of all fires to less then their MMA. Fires will be subject to wildland fire situation analysis (WFSA) with sufficient frequency that there is a high level of awareness of the fire situation. Fires that threaten to exceed MMA limits, especially near park boundaries, the wildland-urban interface, and highly sensitive resources, will be aggressively managed, consistent with protection of firefighter and public safety, to prevent fire moving outside of the MMA.

4) Fire Management Outside of Park Boundaries

Activities that take place outside park boundaries may have profound effects on park management's ability to protect natural and cultural resources inside the park. Park staff will act to protect natural and cultural resources from impacts caused by external activities by working cooperatively with federal, state, and local agencies; Native American authorities; user groups; adjacent landowners;

and others. By working cooperatively through both formal and informal lines of communication and consultation, the park will better achieve management objectives and the protection of natural and cultural resources.

Where permitted by law, regulation, and formal agreements, and authorized by the incident commander or superintendent, and authorized by property owners, NPS fire management staff may assist in fire management activities outside of park boundaries. These activities may include:

- Providing information to the public on wildland fire management and prevention at the urban-wildland interface
- Coordinating and planning with other fire management and public safety agencies,
- Assisting other agencies with prescribed fire management and wildland fire suppression operations.

4. Park Fire History and Fire Ecology

Prehistoric and historic anthropocentric fire use and wildland fire occurrence seem to have played a role in creating and maintaining the landscape and ecology in ecological sub-region now occupied by MAVA (McNab and Avers). McNab and Avers' state:

Disturbance Regimes. *This area…occupies the lower end on a regional disturbance gradient...occurrence of fire… [with] a very low incidence of disturbance in more northern inland sites. Percentage of land in forest continues to increase over time. Composition of present day forest on a landscape scale is heavily influenced by agriculture dating from the colonial period and subsequent farm abandonment from about 1870, as well as by selective logging of certain species, particularly conifers. Although regionally, the distributions of modern and pre-settlement forest types match well, 250 years of land use activity has affected forest structure and composition across the landscape.*

McNab and Avers' also state:

Cultural Ecology. *Native American hunter-gatherer economics emphasized activities such as hunting-fishing-*

gathering, quarrying quartzite, and burning to enhance wildlife habitat, promote berry and other understory vegetation, and to facilitate travel. Settlement by Euro-Americans trended south to north from the late 1700's through the early 1800's. Nineteenth century harvesting of softwoods and hardwoods for iron furnace charcoal resulted in a largely de-forested landscape by the early 20th century.

Historically, fire was used as a tool to manage vegetation and to clear land for settlement or agriculture. This use included both limited use of broadcast fire (anthropocentric fires that burned uniformly across large areas) and burning slash (piled woody waste from timber clearing and harvesting operations). Industrial use of fire also included burning slash from commercial logging.

Agricultural fires, historically and currently, used as an integrated pest management technique to clear vegetation from fields after harvest, were common. Agricultural fires have limited landscape and ecological impacts because they are largely confined to agricultural fields.

Wildland fire has been effectively excluded from the MAVA area for over 100 years. This is a result of both active suppression and conversion of forested lands to agricultural, residential, and industrial use. Conversion of land for human use often creates a patchy distribution of fuels that limits the ability of the land to carry fire.

There are no records of wildland fire occurring within the boundaries of the park since the NPS took ownership of the property in 1974.Wildland Fire Management Situation

a. Historical Weather Analysis

The park does not maintain a weather station and does not take daily weather observations. Weather observations for Albany, New York, located approximately 20 miles north of the park are used as being representative of the weather that occurs at the park and are shown in Table 1.

Table 1. Historic Weather Records for Albany New York

Albany, New York
Elevation: 275 feet Latitude: 42 45N Longitude: 073 48W

Average Temperature Years on Record: 50

°F	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	48	22	24	34	47	58	67	72	70	61	51	40	27

Average High Temperature Years on Record: 50

°F	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	58	31	33	43	58	70	78	83	81	73	62	48	35

Average Low Temperature Years on Record: 50

°F	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	37	13	14	25	36	46	55	60	58	50	39	31	19

Highest Recorded Temperature Years on Record: 50

°F	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	100	65	67	86	92	94	99	100	99	100	89	82	71

Lowest Recorded Temperature Years on Record: 50

°F	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec
	28	-28	-21	-21	10	26	36	40	34	24	16	5	-22

Average Precipitation Years on Record: 50

in.	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	35.7	2.4	2.3	2.9	3	3.5	3.3	3.1	3.3	3	3	3.1	2.9

Average Snowfall Years on Record: 47

in.	YEAR	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	63.3	16	14.2	11.1	2.7	0.1	---	---	---	---	0.2	4.1	14.9

***Source: Qwikcast**.com* **Weather**

b. Fire season

There are normally two annual fire seasons at MAVA. The spring fire season (Late March-June) occurs as the previous year's non-woody vegetation and dead and downed woody fuels dry after winter and before the current years vegetation emerges sufficiently to limit fuel ignition potential and fire spread. The fall fire season (October-November) occurs when, coincident with leaf-drop, the current year's non-woody vegetation dries in the fall and persists until late season rain or snow and low temperatures cause fuel moisture to rise sufficiently to limit fuel ignition potential and rate of fire spread.

c. Fuel characteristics

Fuel loads and fuel moisture within the park are usually such that potential for ignition is limited, fire intensity/rate of spread is generally low, and fire duration is short. Though MAVA has not experienced any wildland fires within the past 10 years, fires within the general area of the park typically burn less then 5 acres and are suppressed with 24 hours.

Table 2 Fuel Models

Vegetation Type	NFDRS Fuel Model	Fire Behavior Fuel Model

Hardwoods after leaf out	R	8
Hardwoods after leaf fall	E	9
Open Shrublands and Old Fields	C	2
Short Grasses	L	1
Slash	K	11

Under normal fire conditions, MAVA does not experience severe or prolonged fire seasons. Analysis of historic fire danger indices conducted through the Normal Fire Year Program (FIREPRO), indicates that 90% of the days in the park fire season occur at or below a burning index (BI) of 36 for Fuel Model E (hardwoods after leaf fall), a BI of 17 for Fuel Model R(hardwoods during leaf out), and a BI of 38 for Fuel Model L (short grasses). Fuel Model L is the most predominate fuel model in the park and is the fuel model most likely to be involved in a wildland fire within the park. The park generally does not experience more than one or two periods a year when fire danger exceeds these levels. On those few occasions when the BI exceeds 90%, it is usually for a period of less than 3 to 4 days.

Forest fuels rarely accumulate sufficiently to become a hazard at MAVA. Medium and heavy fuels typically retain enough moisture to limit their flammability and to ensure that decay limits the total accumulation of fuels.

Fires within the hardwood forests of MAVA are generally restricted to surface fuels, consume leaf litter and branch wood, and reduce reproduction. Under most conditions, such fires are of low intensity and short duration. Flame lengths of 2 feet or less are common; fire spread is influenced primarily wind and topography. Fire effects include the removal of surface fuels, occasional scorching of trees, and the reduction of young woody reproduction.

Under unusual conditions (BI 50-60+), surface fires may torch out and occasionally crown where fuel ladders exist. The extent of such fire behavior is rather limited. Under these conditions fire intensity may be sufficient enough to kill mature trees, particularly those with thin bark, and consume organic matter in soils. Such conditions occur only during periods of severe and prolonged drought.

Hardwood slash at MAVA falls into the low range of values used to describe Fuel Model 11. This slash however, is intermixed with fine herbaceous fuels and occurs on slopes of 30% or more. As such, moderate to high rates of spread and fire intensity can be expected (particularly when running up slope and with the wind. The extent of this fuel type in the park is limited. Fire effects include the reduction of dead and down woody fuel (principally in the 1 hr. and 10 hr. time lag fuel classes), consumption of herbaceous vegetation, and killing of woody root sprouts. Following light slash fuel fires, grasses usually increase in both density and vigor.

Fires within the grasslands of MAVA are typically of low to moderate intensity and short duration. Fire in agricultural fields displays similar fire behavior. Fires within these fuel types spread very rapidly under the influence of wind and topography. Flame lengths of 1 to 4 feet are common depending on fine fuel moisture content, height of the grass, and wind intensity. Fire intensity is generally sufficient to consume all herbaceous surface fuels, kill a percentage of shrubs, and scorch trees where present.

Herbaceous vegetation usually increases in both density and vigor following fires. In some areas of the park, the native responsive grass genus *Andropogon sp*. has replaced other herbaceous and exotic forb vegetation following fire.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal.

Hazard fuels at MAVA are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), or other mechanical or cultural means. Fire is occasionally used to reduce or otherwise manage hazard fuels.

During periods of very high or extreme fire danger, fire in any fuel type could display rapid spread rates and large flame lengths. Under these conditions virtually all fuels

can be considered as hazard fuels because of the high potential for the ignition and spread of wildland fire.

During periods of very low fuel moisture (such as during droughts), and especially where low fuel moisture and high winds occur together, the potential for the occurrence of large wildland fires exists. When fire danger is very high or extreme, ignition sources may be managed by limiting potential sources of ignition (open fires, sparks from automobiles, black powder demonstrations, etc.), limiting public access to portions of the park, limiting park directed activities, and/or by increased fire detection activity.

d. Fire Regime Alteration

Natural fire regimes are a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning. They are based upon the natural frequency and severity of fire in a particular landscape and are divided into five separate natural fire regimes.

The natural fire regime has been effectively removed at MAVA area for over 200 years. This is a result of both active wildland fire suppression and conversion of forested lands to agricultural, residential, and industrial use. Conversion of land for human use has created a patchy distribution of fuels that limits the ability of the land to carry fire.

The natural fire regime for the MAVA FMU is Fire Regime V, which represents the mature hardwood forests of the FMU as originally found by the first European settlers to the region.

Table 3 illustrates the fire regimes as found in the Cohesive Strategy document.

Table 3 Fire Regimes

Fire Regime Group	*Frequency (Fire Return Interval)*	*Severity*
I	0-35 years	Low severity
II	0-35 years	Stand replacement severity

III	35-100+ year	Mixed severity
IV	35-100+ year	Stand replacement severity
V	>200 years	Stand replacement severity

Fire regime condition classes (FRCC) are a classification of the amount of departure from the natural regime of a particular landscape. The FRCC for the MAVA FMU is Condition Class 3. Condition Class 3 occurs when there is a significant level of departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern, and other associated disturbances.

Table 4 illustrates the Condition Classes as found in the Cohesive Strategy document.

Table 4 Condition Class Descriptions

Condition Class[1] Descriptions	
Condition Class	***Fire Regime***
Condition Class 1	Fire regimes are within an historical range and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.
Condition Class 2	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.
Condition Class 3	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.
[1]Current conditions are a function of the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. One or more of the following activities may have	

Condition Class[1] Descriptions	
Condition Class	***Fire Regime***
caused this departure: fire suppression, timber harvesting, grazing, introduction and establishment of exotic plant species, insects or disease (introduced or native), or other past management activities	

Since all wildland fires within the FMU and the surrounding area will continue to be fully suppressed due to the wildland/urban interface present, fire and its effects will continue to be excluded from its natural role across the landscape of the FMU

e. Control Problems

Wildland fires in grasslands and other light fuels may be difficult to control because of the high rate of spread, long flame length, and high likelihood of multiple ignitions caused by embers spread by fire-caused convection winds. Problems controlling fires in light fuels may be limited by the low fire residence times in light fuels. Fires in light fuels may lead to additional control problems if they cause ignition in other fuel types. This is especially true under drought conditions.

Wildland fires on steep slopes can spread rapidly in any fuel type as rising hot air from the fire dries fuels in advance of the fire front and carries flames up slope.

Structures within the FMU and on adjacent properties create a wildland/urban interface risk involving both the protection of life and property and may alter the strategies and tactics available to suppress a fire.

IV.WILDLAND FIRE MANAGEMENT PROGRAM

A.General Implementation Procedures

The wildland fire management program at MAVA is guided by the interim park management and resource management objectives developed during the current general management plan development process.

Implementation of the components of the wildland fire management program at MAVA is consistent with the park's fire management capabilities and will consider the current and predicted conditions affecting fire behavior. When possible, preplanned decisions, based on historical fire behavior indices will be considered in *Stage I Wildland Fire Implementation Plan* development to select an appropriate management response.

1.Wildland Fire Implementation

A Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires. In the event of a wildland fire, the incident commander will conduct a *Stage I: Initial Fire Assessment*, as well as all other required documentation. Because the entire park is in a single FMU which calls for suppression of all fires, the WFIP requirement for completing the *Decision Criteria Checklist* as a part of the Stage I analysis is considered met. The *Fire Situation* assessment, however, will still be completed with the assistance of the park fire management officer at a later date. The most significant management criteria for decision making in the Stage 1 WFIP will be the protection of public and firefighter safety, the protection of real property, and the protection of the park's primary resources.

B.Wildland Fire Suppression

1.Range of Potential Fire Behavior

Fires within the hardwood forests (Fuel Models 8 and 9) of MAVA are generally restricted to surface fuels, consuming leaf litter, down and dead woody fuels, and standing dead wood. Under most conditions, such fires are of low intensity, have short to moderate residence times, and slow rates of spread. Flame lengths of 2 feet or less are common; fire spread is primarily influenced by wind and topography. Fire effects include the removal of surface fuels, occasional scorching of trees, and the reduction of young woody reproduction.

Under unusual conditions (BI 50-60+) and where fuel ladders exist, surface fires may torch out and occasionally crown in the softwood trees intermixed within the hardwoods stands. The potential for this fire behavior is extremely limited. Under these conditions fire intensity may be sufficient enough to kill mature trees, particularly those with thin bark, and consume organic matter in soils. Crown fires may have flame lengths in excess of 50 feet, moderate to long residence times, and rapid rates of spread.

Hardwood slash at MAVA falls into the low range of values used to describe Fuel Model 11. This slash however, is intermixed with fine herbaceous fuels and occurs on slopes of 30% or more. As such, moderate to rapid rates of spread and fire intensity can be expected (particularly when running up slope and with the wind. The extent of this fuel type in the park is limited. Fire effects include the reduction of dead and down woody fuel (principally in the 1 hr. and 10 hr. time lag fuel classes), consumption of herbaceous vegetation, and killing of woody root sprouts.

Fires in slash typically burn with very high intensity. Flame lengths in excess of 3 feet are common. Moderate rates of spread and long residence times are common in dry slash fuels.

Fires within the grasslands (Fuel Models 1 and 2) of MAVA are typically expected to be of moderate intensity and short duration. Fires within this fuel type spread very rapidly under the influence of wind and topography. Flame lengths of 1 to 4 feet are common depending on fine fuel moisture content, height of the grass, and wind intensity. Fire intensity is generally sufficient to consume all herbaceous surface fuels, kill a percentage of shrubs, and scorch trees where present.

Flame lengths in excess of 5 feet may occur when grassland fuels are well cured (dry) and light winds are present. In strong winds or on steep slopes flame lengths can exceed 15 feet may occur with very rapid rates of spread and short residence times.

Table 5 Fire Behavior Under Normal Conditions (0% slope, 8% 1-hour fuel moisture, 5 mph mid-flame wind speed)

Vegetation Type	NFDRS Fuel Model	Fire Behavior Fuel Model	Flame Length (feet)	Predicted Rate of Spread (chains/hour)
Hardwoods after leaf out	R	8	1.0	1.6
	E	9	2.6	7.5
and Old Fields	C	2	3.5	6.0
Short Grasses	L	1	1.0	78.0
Slash	K	11	3.5	6.0

Values are from *Aids to Determining Fuel Models for Estimating Fire Behavior*, Hal E. Anderson, 1982

Table 6 Fire Behavior Under Extreme Conditions (45% slope, 3% 1-hour fuel moisture, 12 mph mid-flame wind speed)

Vegetation Type	NFDRS Fuel Model	Fire Behavior Fuel Model	Flame Length (feet)	Predicted Rate of Spread (chains per hour)
Hardwoods after leaf out	R	8	2.2 with potential for torching and crown fires	8.0
Hardwoods after leaf fall	E	9	7.4	53.0
Open Shrublands and Old Fields	C	2	15.3	226.0
Short Grasses	L	1	10.0	446.0
Slash	K	11	6.5	22.0

Values are from NWCG Fireline Handbook, Appendix B; Fire Behavior, 1993

2.Preparedness Actions

"Preparedness" refers to activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination. Preparedness includes planned activities for the development and implementation of the wildland fire management program. These activities include staffing, training, fire prevention activities, education, provision and maintenance of support facilities, purchase of and contracting for equipment, supplies, support, planning and coordination, policy development and oversight, research, and interagency coordination.

Management requirements for all wildland fire management applications include measurable objectives, qualified personnel, adequate equipment, quantified ranges of conditions under which wildland fires will be managed or planned ignitions will be applied, a description of actions which will be taken if these conditions are exceeded, a monitoring and documentation process, and a review and approval process. These requirements are addressed through preparedness planning.

Preparedness planning is the foundation of an effective fire management program. Thorough planning enables managers to efficiently meet other fire management objectives. For example, the step-up plan should enable the park to have the right resources at the right place, at the right time, to deal with increasing levels of fire danger. As fire danger increases, the level of preparedness must increase. Preparedness actions are preplanned and delineated by staffing classes in the step-up plan (see Appendix E.2). The step-up plan is updated each year prior to the fire season.

a. Wildland Fire Prevention, Education, and Community Assistance

MAVA's fire prevention and education program may be implemented in conjunction with other fire management and public safety agencies to increase awareness of fire prevention, develop understanding of the dangers and benefits of fire, protect human life and property, and prevent damage to cultural resources, real property, and natural resources.

The program of public education regarding wildland fire prevention, potential fire benefits and dangers will be conducted as appropriate to help support FMP goals. Visitor contacts, bulletin board materials, handouts, and interpretive programs may be used to increase visitor and park neighbor awareness of fire hazards and benefits. On-site wildland/urban interface assessments of adjoining structures utilizing Firewise concepts and standards may be conducted for adjoining landowners. The Acadia National Park fire prevention specialist also serves as the North Country Area fire prevention specialist and is responsible for assisting with the park's fire prevention program.

Park employees will be provided with information about fire prevention, the objectives of the fire management program, and the dangers and benefits of prescribed fire and wildland fire. Employees will be kept informed about changes in the fire situation throughout the fire season.

Park employees will inform the public of the beneficial effects of prescribed fires, the history of safe prescribed fire use in the park, and the resource management goals of the prescribe fire program. Park employees will also provide visitors with information on the risks and effects of wildland fire.

During periods of very high or extreme fire danger, fire prevention messages will be placed on visitor center bulletin boards, displayed on signage, and included in interpretive programs and other visitor contacts. Emergency restrictions including closure of all or part of the park and prohibition of activities that create a high risk of wildland fire ignition may be imposed.

When prescribed fires are burning in the park, signs at the park headquarters and bulletin boards will be used to supplement visitor contacts. These signs will be used to inform, educate, guide, and caution visitors about existing fire conditions and prescribed fire activities.

Park staff will work with the local fire departments and other agencies with fire management and public safety responsibilities to establish common protocols and procedures, identify training needs, conduct joint training, and develop strategies for safer and more efficient fire management operations.

5. Community Based Activities

Community fire prevention, community education, and other community assistance activities are coordinated through the chief ranger. Community based activities are generally scheduled based on specific requests from the community.

6. Annual Training Activities

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the NWCG, (310-1). The DOI and NPS incident qualification system meets or exceeds all NWCG standards. The park will conform strictly to the requirements of the NPS wildland fire management qualification and certification system.

Individuals will not be assigned to duties for which they lack training and/or certified experience. Additionally, all NPS employees assigned dedicated fire program management responsibilities at the park, regional, or national level shall meet established interagency and NPS competencies (knowledge, skills and abilities) and concomitant qualifications.

MAVA will support training, skill development, and certification to meet or exceed NWCG standards for park staff with specific fire management duties. The park fire coordinator is responsible for organizing the training required to meet park needs for park wildland firefighters. When advanced or specialized training is necessary, the park fire coordinator will work through the Area FMO at Acadia National Park to obtain the training and funding to support park staff participation.

The park fire coordinator will evaluate training needs for park personnel with their input. Approval from the park fire coordinator, an employee's supervisor and the superintendent are required for participation in fire training. Staff who receive fire training may be required to participate in local, regional, or national fire management activities as a condition of their training.

Staff with advanced training and certification may be required to apply their training in fire management situations and/or complete additional training to maintain their certification. Specific training

needs will vary with the type and level of certification held by park staff. At MAVA priority will be placed on qualifying personnel as Type 1 and 2 firefighters, and Type 4 and 5 incident commanders.

Annually, firefighting personnel are required to complete an eight-hour fire safety refresher training and pass the work capacity test at the fitness level required for the positions for which they are qualified.

Fire training course announcements are posted at park headquarters as they are received. Additional copies are routed to division heads and the park fire management coordinator.

Annual seasonal employee training will include information on:

- The purpose and objectives of the fire management program.
- The goals and benefits of park prescribed fire use.
- The annual schedule of prescribed fire actions.
- Public, employee, and firefighter safety during suppression and prescribed fire operations.

7. Annual Preparedness Activities

Annual preparedness activities MAVA will undertake include:

- Incorporate preparedness and fire prevention considerations into all management functions.
- Maintain a cache of supplies, materials, and equipment sufficient to meet normal fire year requirements.
- Maintain fully qualified personnel commensurate with the normal fire-year workload.
- Ensure that information on all wildland fires and prescribed fires within MAVA is documented and entered into NPS automated fire record systems.
- Maintain an approved fire management plan and step-up plan.
- Maintain record systems, weather data, maps and other related information.

- Prepare pre-season risk analyses.
- Provide for a dispatch system for fire management resources within and adjacent to the park.
- Maintain detection and initial attack capabilities.
- Develop and maintain agreements to coordinate interagency operations.

MAVA maintains a minimal fire cache containing tools, supplies, and PPE to accommodate a four-person wildland firefighting crew. MAVA has no fire apparatus.

All fire management equipment and supplies will be inventoried in accordance with NPS fire and property management policies.

All fire management equipment will be maintained in good working order and will be inspected and tested as appropriate, including inspection and testing before the start of the spring fire season. Equipment maintenance shall include sharpening tools, inspecting tool handles, testing radios and batteries, and similar activities.

As fire management equipment is used and returned to the fire cache its condition will be checked and appropriate maintenance will be performed to return it to ready condition. Damaged equipment will be repaired or replaced.

All fire supplies will be inventoried before the start of the fire season. During the fire season, the supplies will be inventoried with sufficient frequency to ensure that the stock of all fire supplies is sufficient to meet park needs.

Following the fall fire season, all fire management equipment and supplies will be inventoried and stored appropriately to maintain it in good condition and to ensure its availability for future fire management activities.

The following outline details the calendar year fire management program for the park. These activities are coordinated with all park divisions and the Area FMO.

An annual preparedness activity schedule follows:

January

- Permanent employees' physical fitness exams if required.
- Update the fire callout list.
- Update fire experience and training records for fire qualified personnel.
- Submit updated personnel records for fire qualified personnel to the Area FMO.
- Archive training and experience records of seasonal personnel.

February

- Meet with cooperators, final review and revision of interagency agreements.
- Review and coordinate emergency dispatch procedures with the Area FMO.
- Complete semi-annual service of power saws and other equipment. Make sure all equipment and supplies are in a fire ready condition.
- Prepare prescriptions and burn plans for prescribed fires. Submit prescribed fire burn plans for review and approval.
- Inventory fire cache and order all necessary fire items to maintain a fully stocked fire cache.
- Review step-up plan. (Appendix E.2)
- Check established procedure for utilizing suppression and emergency preparedness accounts with the Area FMO.

March:

- Meeting or discussion with the New York Department of Environmental Conservation regarding smoke management and other fire management related activities.
- Meeting or discussion with the Area FMO to review plans and current program.

- Meeting with cooperators to review approved fire management plan revisions.

- Permanent employees' physical fitness scores due.

- Pre-season planning completed; all cooperative agreements revised and in effect.

- Issue fire qualification cards to qualified permanent personnel.

- Coordinate fire weather program notification with Saratoga National Historical Park.

- Implement step-up plan and adjust level of preparedness in response to changing fire danger levels.

February 15 - May 30 (spring fire season)

- Equip park vehicles with fire tools.

- Post fire danger posters as needed.

- Maintain all fire equipment to manufacturers recommended standards to ensure preparedness.

- Continue planning for prescribed fire program.

- Draft FIREPRO budget requests and submit to Area FMO at Acadia National Park.

June

- Medical examinations and physical fitness testing for seasonal personnel.

- Issue personal protective equipment to seasonal personnel as necessary.

- Participate in annual seasonal fire training.

- Issue updated fire call-out list to the Area FMO at Acadia NP, Saratoga National Historical Park , and local cooperators.

July

- Conduct semi-annual service of power saws and other fire equipment.

September

- Meet with finance personnel on status of fire accounts and outstanding fire orders or requisitions.

October 15 - November 30 (fall fire season)

- Review spring activities to ensure that all pertinent pre-season activities are carried out as necessary for fall fire season.

December

- Critique fire season. Evaluate individual performance of park staff to correct deficiencies, recognize achievements, evaluate training needs, and recommend appropriate program changes.

- Review interagency agreements, draft revisions as necessary, and submit to the superintendent for approval.

- Review and revise fire management plan as necessary. Submit FMP for approval.

- Inventory fire cache and requisition replacement equipment and supplies to maintain approved levels.

- Submit proposals for annual training to superintendent for review.

- Forward nominations for interagency fire training to the Area FMO.

- Archive weather records.

- Forward outstanding fire reports to the Area FMO.

8. Fire Weather and Fire Danger

a. Weather Stations

MAVA will utilize the fire weather station at Saratoga National Historical Park (SARA) as being representative of the fire weather for the park. This station is located approximately 45 miles north of MAVA. Daily weather data at SARA is collected using a remote automated weather station (RAWS unit). The data is automatically entered into the National Weather Service's fire weather database (*WIMS*) by satellite transmission on an hourly basis.. The weather observations from SARA are available on-line through the MesoWest website maintained by the University of Utah's Department of Meteorology. The website address for the SARA weather station (MesoWest ID # SHPN6) is: http://www.met.utah.edu/cgi-bin/droman/meso_base.cgi?stn=SHPN6&time=GMT

SARA has weather data since the 1970s. This data allows park fire managers to effectively model expected weather conditions and fire behavior at the park and on adjacent lands. The SARA weather station serves as a resource for a variety of land management agencies and researchers. Data from the weather station is routinely provided to other NPS sites, New York State Forest Rangers, and other regional agencies.

The Nature Conservancy also maintains a RAWS station at the Albany Pine Bush, located approximately 30 miles northwest of MAVA. The weather data collected at this location may also be used to assist fire managers at MAVA. The weather observations from this station (MesoWest Station ID # TS554) may also be accessed through the MesoWest website at: http://www.met.utah.edu/cgi-bin/droman/meso_base.cgi?stn=TS554&time=GMT

Additional weather information is also available to the park through the local media and the National Weather Service office in Albany, New York. Spot fire weather forecasts are available from the NWS Albany office upon request. Weather information and spot weather forecasts from the NWS Albany office website at: http://www.erh.noaa.gov/er/aly/FireWx/FirePage.htm

b. National Fire Danger Rating System (NFDRS)

The National Fire Danger Rating System (NFDRS) helps fire managers estimate the difficulty of control of a wildland fire. NFDRS utilizes a series of indexes based upon cumulative observed weather data to provide predictions for broad areas of how difficult it would be to bring a wildland fire under control within that area on that particular day. The NPS does not generate specific NFDRS ratings for the park. MAVA utilizes the NFDRS indices generated from the SARA weather station observations. SARA utilizes the 1978 National Fire Danger Rating System. Under the NFDRS, fire danger is broadly divided into five classes according to the intensity of fire danger factors. These classes (adjective ratings) relate to the expected difficulty to control a wildland fire and indicate the projected staffing level of fire suppression resources for each class. The burning index values in Table 7 are based upon an analysis of SARA's historic fire danger for Fuel Model L.

Table 7 National Fire Danger Rating System

ADJECTIVE RATING	STAFFING CLASS	BURNING INDEX
Low	I	0 - 3
Moderate	II	4 - 8
High	III	9 - 17
Very High	IV	18 - 30
Extreme	V	31 +

The US Forest Service generates adjective ratings for large scale areas throughout the United States. These ratings for the park can be found in the "Fire Danger Maps", a product of the Wildland Fire Assessment System. The maps can be accessed at the US Forest Service website at: http://www.fs.fed.us/land/wfas/wfsa23.html

NFDRS thresholds for prescribed fire are described in the prescribed fire burn plans associated with specific burn units and in the step-up plan. Prescribed fire will normally be limited to periods with NFDRS ratings of I (low) or II (moderate).

Analysis of historic fire danger conducted through the normal fire year program (FIREPRO), indicates that 90% of the days in the park fire season occur at a BI of 36

(Model E), 17 (Model R), 38 (Model L), or less. Prescribed fire and remain viable management options at these burn index levels.

The park generally does not experience more than one or two periods a year when the fire danger exceeds high. On those few occasions when the fire danger is at the very high or extreme level, it is usually for a period of less than 3 or 4 days.

9. Step-Up Staffing Plan

The step-up staffing plan describes additional staffing, preparedness activities, detection, and suppression strategies that may be put in place as the local fire danger rating (see Table 9) increases from low to extreme. These activities are "stepped-up" as fire danger increases to ensure that appropriate detection and initial attack resources are available to protect public safety and park resources.

The staffing classes relate to the expected severity of fire conditions. The park superintendent may choose to increase preparedness-staffing class by one level for unusual events that would increase the potential for wildland fire or increase the risk to values to be protected from wildland fire.

Preparedness actions are based on the latest fire danger rating (see Table 9) and the next day forecast from the NFDRS. Fire conditions that typify each staffing class are listed below:

Staffing Classes I and II (Low/Moderate)

Fires will present at low to moderate level of control difficulty. Fires occurring at these levels may be controlled with existing forces (park staff and local fire departments). Wind speed and direction will determine speed of fire spread. Fine fuels are may be wet or re-drying. Prescribed fire is usually viable management options.

Staffing Class III (High)

Fires will present a moderate level of control difficulty. Light fuels are becoming dry. Heavy fuels are drying. Mop-up may be more difficult and time-consuming. Prescribed fire use may be management options with sufficient support and appropriate weather conditions.

Staffing Classes IV and V (Very High/Extreme)

Fire will present a moderate to high level of control difficulty. Initial attack and reinforcing crews may have difficulty controlling a fire at this level. All fuels are dry. Air temperature is high and humidity is low. Strong gusty winds are possible. Spotting may occur. Prescribed fire is not appropriate under these conditions. Emergency preparedness FIREPRO funds may be used at these staffing levels to fund increased fire preparedness activities.

For descriptions of each preparedness level based on staffing classes, all actions planned and authorized at each staffing class level, and funding sources see the staffing step-up plan in Appendix E.2.

3.The Pre-Attack Plan

Due to the limited risk of fires large enough to warrant extended attack, no formal pre-attack plan has been written. The local fire department, responsible for all initial attack within the park, has developed protocols and procedures for initial attack of fires within the park. MAVA's historic structures receive the highest priority in regard to any fire suppression actions. Measures currently being taken to prevent the damage or destruction of these structures by fire include creating defensible space around them and maintaining mowed lawns.

The Pre-attack checklist (Wildland Fire Management Reference Manual 18, Chapter 7, Exhibit 3) has been reviewed and park staff have identified and documented all critical elements described in the checklist. The park fire management officer maintains this information.

4.Initial Attack

Initial attack is the first wildland fire suppression action applied to a fire. Since suppression of all wildland fires is a park fire management goal, no Stage I Wildland Fire Situation Analysis is required to determine that initial attack is the appropriate management response to the current or expected fire situation. This presumption will stand until the fire is suppressed or escapes initial attack.

Initial attack strategies will vary with the threat to firefighter and public safety, the fire situation, the range of values-to-be-protected threatened by the fire, the potential impacts of fire suppression activities, and the cost of suppression activities. Initial attack tactics can range from aggressive suppression on the fire line (where firefighters attempt to suppress the fire at or near the perimeter of the fire) to confinement (where firefighters use natural barriers or constructed barriers to limit fire activity to a specific area).

Initial attack suppression is the most commonly chosen management response to wildland fires at MAVA. Due to the relatively low to moderate fire behavior seen in fires in the general area of the park, it is expected that almost all fires within MAVA will be completely suppressed during initial attack.

Initial attack at MAVA is the responsibility of the Stuyvesant Volunteer Fire Department.

a. Information Used to Set Initial Attack Priorities

A variety of information to be used for setting wildland fire suppression priorities is held by the resource management and fire management staff of the park. This information includes GIS data layers of vegetation, sensitive habitat, archeological resources, wetlands, soil, historic resources, park infrastructure, roads and trails, topography, water sources, and adjacent properties.

In addition, maps including:

- Cultural resources site maps displaying archeological sites, historic structures, and other resources.
- Natural resources site maps displaying sensitive habitats and species, wetlands, and other resources.
- Park facility maps.
- Maps showing adjacent private, municipal, and state properties and structures.
- Areas where specific suppression tactics are restricted.

Park staff will make information needed to make appropriate fire management decisions available to the incident commander.

10. Initial Attack Response Criteria

Criteria for choosing the appropriate initial attack strategy and the intensity of response warranted include:

- Protection of firefighter and public safety.
- Protection of cultural, historic, and natural resources.
- Protection of improvements and private property.
- Minimum impact suppression tactics (MIST).

- Current and predicted fire behavior as determined by fuels, weather, and topography.

- Available suppression resources and response times.

- Mechanized equipment use off-road will be limited and requires park management approval.

- Minimizing suppression costs when consistent with safe and effective fire management.

The initial attack response decision criteria are consistent with the interim objectives identified in the current planning process to develop a general management plan and resource management plan for the park. The criteria are also consistent with NPS management policies and guidance. These criteria should be used to define the intensity of the response to the fire situation based on the fire behavior, weather conditions, and potential fire effects.

When there are multiple fires burning at the same time, the incident commander will allocate fire management resources as appropriate to conserve resources identified in the GMP, RMP, and this plan as having high value. These values to be protected include:

- Public and firefighter health and safety. ***Safety will always be the highest priority!.***

- Protection of primary park resources.

- Protection of real property.

- Sensitive species and sensitive habitat.

11. Confinement as an Initial Attack Suppression Strategy

Confinement may be selected as a fire management strategy during initial attack. Confinement may be selected to:

- Maximize firefighter safety.

- Minimize suppression costs.

- Minimize cost and loss in low valued and commodity resource areas.

- Conserve values to be protected.

- Maximize availability of critical suppression and management resources during periods of high fire danger associated with fire in highly valued resource areas.

A WFIP will be prepared in stages as the fire or management considerations dictate.

Confinement can also be a strategic selection through the WFSA process when the fire is expected to exceed initial attack capability or planned management capability.

A confinement strategy may not be implemented to achieve resource management objectives.

12. Typical Fire Response Times

The local fire department is typically dispatched within ten minutes following the report of a fire. Fire fighters and fire trucks typically arrive at the park within fifteen to thirty minutes following dispatch and arrive at the nearest road access between zero and twenty minutes later. During periods of high visitor use response times may be significantly longer due to heavy traffic on the park road.

During times of very high or extreme fire danger the park may increase the level of park based fire detection activity. This may include stationing park staff to monitor for fires while the park is open to the public or, during periods of extreme fire danger, 24-hours per day. Initial response time may be less then five minutes at these detection levels.

13. Restrictions and Special Concerns by Management Area

The incident commander is delegated the authority for making restricted use exemptions in emergency situations where time is critical. In non-emergency situations the incident commander will consult with the appropriate park and regional resource advisers and the superintendent or their representative before granting restricted use exemptions. Restrictions and special concerns include:

a. Limits on equipment use and fire-line construction

Use of fire fighting equipment and techniques are limited by the potential for direct and indirect impacts to archeological resources, the historic landscape, sensitive species, and sensitive habitats. Use of fire fighting tools and equipment, including tracked vehicles, off-road wheeled vehicles, plows, fireline explosive, and other equipment or techniques that by nature or common use are ground disturbing or and/or may crush artifacts at or near the surface should only be used when required to control or contain a fire.

Equipment and activities that could damage archeological resources, sensitive species, and sensitive habitats include:

- Driving wheeled or tracked vehicles/equipment off of established roadways.
- Digging fire-line with hand-tools, heavy equipment, or fireline explosive.
- Removing vegetation from steep slopes or otherwise creating conditions where erosion or mass wasting is likely.
- Other ground disturbing activity.

And should only be used in cases where:

- Human health and safety are at direct risk.
- Fire directly and immediately threatens to cause significant damage to primary park resources, or
- Fire on the park directly and immediately threatens significant real property on or adjacent to the park.

The incident commander will make a good faith effort to anticipate the need for exemptions in emergency situations and consult with the archeological resource advisor (appointed by the regional archeologist) and/or other resource advisors designated by the superintendent before any equipment use or activity that could threaten park archeological resources (i.e. ground disturbing activity or off-road vehicle use) is undertaken. This requirement does not preclude the incident commander from taking any

action in an emergency situation that they deem necessary to protect the lives and safety of firefighters and the public.

b. Sensitive Species and Habitats

No state or federally listed species are currently known to exist within the park. If such species are discovered in the future, this document will be updated accordingly.

c. Hazardous Materials

Several areas within the park contain potentially hazardous materials. These areas include historic farm dumps (may contain pesticides, petroleum products, and other agricultural chemicals). Smoke from fires burning over these sites may contain chemicals that could be hazardous to firefighters. Appropriate personal protective equipment will be used if fire suppression efforts in these areas require that firefighters come in to contact with smoke from these sites.

d. Maps

Detailed maps of restrictions and special concerns areas will be provided by the park to the all agencies involved in initial attack in the park. These maps will include sensitive historical and archeological resource areas, hazardous materials, and any habitats of sensitive species that are discovered. The park is responsible for communicating the importance, regulations and protocols, and locations of restricted and special concerns to all cooperators.

f. Local Issues

The Stuyvesant Volunteer Fire Department conducts initial attack and suppression. Occasionally assistance may be requested from other NPS sites in the local area and the New York State Forest Rangers.

Fires in the MAVA area are typically extinguished within 24 hours of detection. Fires are rarely, if ever, large enough or of sufficient duration to require the hiring of local wildland fire fighters.

Individuals or businesses from the local communities are available for contracting for services (catering, hauling water, etc.) and equipment.

Recyclable materials from fire suppression and prescribed fire management are incorporated into the park's existing recycling program.

5.Extended Attack and Large Fire Suppression

a. Extended Attack Needs

Fires large enough to require extended attack are extremely rare in the region. No extended attack wildland fires have been reported at MAVA. The existing mutual aid agreements between the Stuyvesant Volunteer Fire Department and other local fire departments combined with staff from other national park sites in the area, and in rare cases fire support from other local fire management agencies or dispatched through the national fire mobilization system are sufficient to meet anticipated extended attack and large fire suppression needs of the park.

14. Implementation Plan Requirements – WFSA Development

When a fire escapes initial attack, a new strategy must be developed to suppress the fire. This selection process is accomplished through the development of a WFSA.

The WFSA is a decision process that employs a systematic and reasonable approach to determine the most appropriate management strategy for a particular situation. Reasonable management alternatives are identified, analyzed, and evaluated, and are consistent with the expected probability of success /consequences of failure. The superintendent shall approve the WFSA and any revisions. Evaluation criteria include firefighter safety, anticipated costs, resource impacts, and social, political, and environmental considerations. The evaluation of alternatives becomes the triggering mechanism for re-evaluation of the WFSA.

The Wildland Fire Implementation Plan (WFIP) describes the range of operational management decisions including initial attack and extended attack. The WFIP includes a decision making process that informs the incident commander of the range of appropriate fire management strategies for the fire situation. The development and use of each WFIP will follow the guidelines of the *Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide* and will meet all the requirements of DO-18 and RM-18.

The incident commander will ensure that Wildland Fire Situation Analysis and a WFIP are completed for each wildland fire.

An electronic version of a WFSA can be found at the U. S. Forest Service website at:
http://www.fs.fed.us/fire/wfsa/.

Management criteria that should be considered in the WFIP decision-making process include:

- Human health and safety.
- Values to be protected.
- Use of MIST to minimize soil disruption or compaction and avoid potential impacts on archeological artifacts and sites.

15. Criteria for Transition from Initial Attack

Transition from initial attack to extended attack will occur when an active fire exceeds one burning period or has exceeded the capabilities of the initial attack forces. Transition to a higher level incident command will occur whenever the fire complexity exceeds the management level of the incident management team in place.

Transition to an incident management team requires a briefing by the superintendent and a limited delegation of authority for the suppression of the fire(s). The briefing should address agency specific concerns, priorities, firefighter and public safety, economic and resource concerns, and other topics or issues of importance and relevance to the suppression effort.

The incident commander may also transition from initial attack to extended attack when initial attack activities fail to adequately limit threats to:

- Firefighter and public safety.
- Cultural, historic, and natural resources.
- Improvements and private property.

The same criteria will be used if it is necessary to transition to type I or type II incident management organization.

16. Delegation of Authority for Incident Commander

If a fire is to be managed by an incident command team (ICT) from outside the park or the Stuyvesant Volunteer Fire Department, a delegation of authority delineating the responsibilities of the ICT will be completed by the park superintendent and delivered to the incident commander prior to the team undertaking management of the incident. A sample delegation of authority may be found in Appendix E.

6.Exceeding WFIP Thresholds

Fire thresholds include weather, observed fire behavior, and predicted fire behavior in Wildland Fire Implementation Plans (WFIP). When WFIP thresholds are exceeded, when WFIP thresholds are expected to be exceeded, when wildland fires cannot be controlled during the initial suppression response action, or when the appropriate management response has not been successful, the incident commander will initiate a new Wildland Fire Situation Analysis (WFSA). The goal of this WFSA will be selecting an appropriate management response that responds to the changing fire situation. A new WFIP must be developed utilizing a new strategy by which the fire should be managed.

7.Minimum Impact Suppression Tactics (MIST)

Minimum impact suppression tactics (MIST) are defined as the application of those techniques that effectively accomplish wildland fire management objectives with the least cultural and environmental impacts commensurate with public and firefighter safety. It is NPS policy that MIST will be used for all fire management activities on NPS lands. DO-18 states that: "Methods used to suppress wildland fires should minimize impacts of the suppression action and the fire, commensurate with effective control and resource values to be protected."

Within MAVA the use of MIST generally involves minimizing soil disruption and compaction and the disruption of plant root systems and/or vegetative cover that binds soils. These tactics reduce the potential for direct damage to archeological resources in the soils and indirect damage from post fire erosion.

All suppression activities would follow Minimum Impact Suppression Tactics (MIST) guidelines. These include:

- Keep fire engines or slip-on units on existing roads;
- Restrict the use of heavy equipment such as bulldozers or plows for constructing firelines. A tractor with box blade or disc would be used for fireline construction only in extreme situations and only on

the mainland portion of the park when high value resources are at risk, and then only with the authorization of the park superintendent or designee;

- Use existing natural fuel breaks and human-made barriers, wet line, or cold trailing the fire edge in lieu of handline construction whenever possible (cold trailing is a method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot and trenching any live edge);

- Keep fireline widths as narrow as possible when they must be constructed;

- Avoid ground disturbance within known natural and cultural resource locations;

- Use soaker hose, sprinklers or foggers in mop-up; avoid boring and hydraulic action;

- Minimize tree cutting;

- All suppression actions would utilize the appropriate management response derived from the fire management objectives and developed in cooperation with the Calais Fire Department;

- Protect air and water quality by complying with the Clean Air Act, the Clean Water Act, and all other applicable federal, state, and local laws and requirements.

8.Rehabilitation

Burned area rehabilitation is generally not required except where fires have burned with unusual intensity, occurred on steep slopes, occur near flowing water, or where suppression activities have disrupted soils and shallow root structure. Prescribed fires and wildland fires rarely consume all organic duff and organic soil layers, so plants with surviving root mass and the existing seed-bed will normally re-vegetate burned areas during the growing season. Rainfall and soil moisture levels within the park are generally high enough to promote rapid re-growth of perennials and rapid germination of annual seeds.

a. Immediate and Emergency Rehabilitation

When there is a clear and immediate need for rehabilitation to protect resources, actions may be directed by the incident

commander and carried out as part of the incident. Immediate rehabilitation activities are normally funded through the emergency fire suppression account. Examples of immediate rehabilitation actions include:

- Removing litter and trash from the incident site, staging areas, and camps.
- Refilling constructed fire line and areas of soil disturbed by vehicles or other fire-related activities as needed to prevent erosion. Water bars may be installed as needed.
- Flush cutting stumps of trees and brush as needed.
- Ensuring safety for incident personnel and the public (e.g. cutting hazard limbs or felling hazard trees).
- Scattering or burning woody debris generated by fire suppression.

b. Short-term Rehabilitation

Short-term rehabilitation includes actions to stabilize a burned area and mitigate effects of fire suppression activities. Most short-term rehabilitation projects will be initiated within 60 days after incident closeout or may be initiated within one-year of a fire incident.

Park staff, regional resource managers and scientists, regional archeologists, and others will be consulted as appropriate for proposed rehabilitation recommendations and project review. Any proposed re-vegetation or other rehabilitation activities will be based on an assessment and evaluation of damage to the resource and will comply with NPS policies and regulations.

If extensive emergency rehabilitation is needed or if rehabilitation is needed to reduce the effects of a wildland fire then the park can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS Branch of Fire and Aviation Management at the National Interagency Fire Center. The specifics of the policy can be found in 620 DM 3 DOI BAER Policy (2001). BAER project requests totaling $300,000 or less can be approved by the Regional BAER Coordinator. Submissions over this amount are reviewed at the regional level, and forwarded to the Fire Management Program Center for approval. Requests for BAER funding must be made to

the Area FMO within 72 hours of the date the fire is declared controlled.

c. Long-term Rehabilitation and Recovery

The goal of long-term rehabilitation is "recovery", i.e. to bring impaired resources back to approximately their pre-fire appearance and function. Recovery can include restoration of plant and animal communities, replacement of buildings or infrastructure, landscape rehabilitation, and other activities. Long-term rehabilitation will often continue activities begun as short-term rehabilitation projects.

Park staff, regional resource managers and scientists, regional archeologists, and others will be consulted as appropriate for proposed rehabilitation recommendations and project review. Any proposed re-vegetation or other rehabilitation activities will be based on an assessment and evaluation of damage to the resource and will comply with NPS policies and regulations.

Recommendations for long-term rehabilitation (recovery) projects will be submitted to the superintendent in the form of a written rehabilitation plan. Long-term rehabilitation plans will normally include monitoring elements. Restoration plans must be approved by the superintendent prior to execution. Plans involving re-vegetation and reseeding must use appropriate native species and may require additional written approval from the regional director.

Long-term rehabilitation and recovery activities are normally considered part of ONPS funded operations rather than emergency actions.

All immediate, short-term and long-term rehabilitation of areas impacted by fires and fire suppression activities will be rehabilitated as appropriate under BAER guidelines and procedures. Rehabilitation will be undertaken where monitoring reveals that natural processes alone are not sufficient to conserve values to be protected. See RM-18, Chapter 12 for guidance.

9.Records and Reports

All fire-related records and reports required will be completed, entered into appropriate databases, and retained as described in DOI RM-910, NPS DO-18 and NPS RM-18. The park fire management officer is responsible for completing and submitting records and reports on individual fires and all annual reports and annual data summaries.

a. Wildland Fire Implementation Plan (WFIP)

A Wildland Fire Implementation Plan will be prepared for every wildland fire and will be the responsibility of the park fire management officer. Stage I establishes documentation groundwork for the fire. It provides information on location, fire cause, administrative information, fuel conditions, weather, and fire behavior situations. Because the entire park is in an FMU which calls for full suppression of all fires, the WFIP requirement for a decision checklist as a part of Stage I analysis is considered met. The fire situation assessment sheets, however, will still be completed.

b. Individual Fire Reports (DI-1202)

The NPS report for documenting a wildland fire is the Individual Fire Report (DI-1202). It is important that all fires occurring within park boundaries be documented using, at a minimum, this form. This includes fires that go out on their own, when the location can be documented. The DI 1202 is the basic document used by the National Park Service to document fire occurrence. The DI-1202 form may be downloaded at http://ndc.fws.gov/forms/1202frm.pdf

The park fire management officer is responsible for preparation of the individual fire report. These reports will be completed according to NPS procedures. Fires will be sequentially assigned a fire number by calendar year, i.e. fires in 1999 are numbered 9901, 9902, etc. Completed DI-1202 reports will be forwarded to the Area FMO, who will input the reports into the Wildland Fire Management Information (WFMI) System.

C. Wildland Fire Use

Wildland fire use consists of allowing some portion of a wildland fire to burn under controlled circumstances to achieve park resource management goals and objectives. Because the incidence of wildland fires occurring under conditions that would allow wildland fire use is extremely low, the park size is very small, their is a high degree of wildland/urban interface areas surrounding the park, the work load associated with planning for wildland fire use is large and not a management priority, and park staff may not have the required level of certification required to support wildland fire use, MAVA will not use wildland fire as a resource management tool under this plan.

Wildland fire use may be used in future fire management plans. If wildland fire use is proposed, appropriate NEPA compliance, NHPA compliance, and public notification and review will be completed at that time.

D.Prescribed Fire

Prescribed fires may be intentionally ignited when predetermined (prescribed) weather and fuel-moisture conditions are met. Igniting fires under predetermined prescriptions allows fire managers to exert substantial influence over the rate of fire spread, level of fuel consumption, and fire intensity. Fire managers ignite prescribed fires to accomplish resource management objectives including landscape management, habitat management, and fuel reduction. All prescription parameters, acceptable ranges, and objectives are clearly stated in a burn unit specific prescribed fire plan.

All prescribed fire burn plans must be reviewed and recommended by a burn boss qualified at or above the complexity level of the project. Additional reviews may be required by regional and national NPS policy. Review of all burn plans will be coordinated with the Area FMO. Other park specialists will also review prescribed fire burn plans, particularly when clearances for the protection of cultural resources or threatened or endangered species are needed, air quality permits are required, or new programs are being implemented.

The park superintendent functions as the agency administrator for prescribed fire and retains the ultimate authority for approving all prescribed fire plans.

Prescribed fire burn plans and activities include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All prescribed fire projects are documented by the park utilizing the DI-1202 report and inputted by the Area FMO into the Wildland Fire Management Information (WFMI) System as specified in RM-18.

An environmental analysis (Appendix D) has been completed for this fire management plan. Therefore, an environmental assessment will be necessary only for any prescribed fire project not outlined in this plan. All burn plans will describe the contingency actions to be taken in the event the prescription is exceeded. All burn plans will also address the need for alerting neighbors and appropriate public officials to the timing and the execution of the burn.

All prescribed fire activity will comply with applicable federal, state, and local air quality laws and regulations.

1.Prescribed Fire Planning and Documentation

a. Annual Prescribed Fire Preparedness and Planning

Annual activities to prepare for and implement the prescribed program include preparedness, planning, administration, and operational activities (pre-burn preparation, etc.). These activities fall within the normal work schedule of the fire management program.

Park resource management and management staff will select and prioritize burn units for prescribed burn application, allocate ONPS funding levels for the prescribed fire program, and determine the amount of FIREPRO funding available for prescribed fire use. Burn units will be selected based on resource management objectives, feasibility, and available funding.

Accounts will be set up to track available ONPS, FIREPRO funds, other fire funds, and expenditures for prescribed fire. Funds from these accounts will be dedicated to appropriate prescribed fire activities or support. This includes purchase of supplies and equipment, salaries and benefits, fire-related travel and training, and other fire-related expenditures. NPS regulations and guidelines for tracking, documenting, and reporting use of funds will be followed.

The park fire management coordinator, in consultation with the superintendent, will prepare an annual prescribed fire schedule. The schedule will list the burn unit compartments proposed for burning during the year and approximate dates (burn window) for prescribed fire application. The annual schedule will be completed by March 15 each year.

Prescribed burn plans will be completed for each unit scheduled for prescribed fire application. Burn plans will be completed and submitted for review at least two months before the proposed burn window.

Annual park staffing and training needs will be determined based on planned prescribed fire activity. Annual personnel preparations include the hiring and training of permanent and seasonal park staff. At minimum, fireline staff must attend basic firefighter safety training or an annual eight-hour fire safety fresher training and must pass a work capacity test at the arduous level.

Prescribed fire equipment and supplies will be inventoried and equipment and supply needs will be determined. Annual

prescribed fire operations include burn compartment preparation, prescribed fire application, fire and post-fire monitoring, weather monitoring, smoke management, record keeping and reporting.

Fire related cooperative agreements will be updated and renewed as appropriate.

17. Long-Term Prescribed Fire Strategy

The long-term prescribed fire strategy at MAVA is to use prescribed fire to maintain the appearance of the historic landscape that gives the impression of the landscape present at the time of Martin Van Buren's residency. This strategy involves cyclic routine maintenance burning of existing agricultural fields and grasslands to encourage native cover and control the spread of woody invasive plants in to the fields, and rehabilitative burning of shrublands to remove all woody plants and foster the growth of grasses and forbs.

In the future, the park may attempt to use prescribed fire in the understory of forested areas to reduce the shrubs and woody vines in the understory of the forest.

18. Personnel Necessary to Execute the Annual Prescribed Fire Program

The type and number of positions required to conduct a prescribed fire is determined by the complexity analysis for the specific burn. At a minimum, it can be expected that any prescribed fire at MAVA will require the following positions.

- Prescribed Fire Boss
- Holding Specialist
- Ignition Specialist
- Safety Officer
- Fire Behavior and Weather Monitor
- Firefighters

A qualified individual may not fill more then one of these positions at the same time. MAVA does not have sufficient personnel to implement the prescribed fire program on it's own. Assistance will

be provided by the Area FMO to provide the personnel and equipment needed to meet any deficiencies.

d. Prescribed Fire Behavior and Effects Monitoring

Fire monitoring will be used to evaluate the degree to which burn objectives are accomplished. Long-term monitoring is required to document that overall programmatic objectives are being met and undesired effects are not occurring. Evaluation of fire effects data will be the joint responsibility of fire management and natural resources management personnel.

The burn boss is responsible for ensuring that smoke monitoring data is collected, recorded. Smoke monitoring data will be used to evaluate the success of the prescribed fire project.

Current weather and forecast weather for the period of the proposed prescribed fire will be monitored to at least NPS minimum standards. On-site weather data will be collected, recorded and relayed to the incident commander as frequently as needed to maintain a good understanding of the fire situation. Weather forecasts from the National Weather Service and local weather stations may be monitored using hand-held radios or cellular phones.

Fire weather data will be collected hourly during ignition operations and while active fire behavior is present. Weather data will be collected with increasing frequency when weather conditions or the fire situation are predicted to change or are changing. On-site weather will be recorded on FMH-1 Weather Data forms.

FMH-3 Smoke Monitoring Data forms will be used to record fireline visibility, tour-road and highway visibility, smoke volume and dispersal, and any complaints.

FMH-2 Fire Behavior Data forms will be used to record fire behavior which will be monitored on a continuous basis during the ignition and active burn phases of prescribed fire operations.

Copies of these forms are found in the *NPS Fire Monitoring Handbook*.

All areas subject to prescribed fires will be monitored using the protocols described in the *NPS Fire Monitoring Handbook*. Monitoring techniques used may include vegetation sampling, photo documentation, visual survey, fuel moisture analysis, fuel loading determination, and other appropriate techniques.

e. Prescribed Fire Project Critiques

All prescribed fires will be critiqued verbally after the fire is declared out. A written summary of the critique will be attached to the prescribed fire plan and filed in the permanent project record. The burn boss is responsible for conducting the verbal critique and completing the written summary. Additional documentation will be included in the project record at the discretion of the incident commander.

Critiques of prescribed fire projects will be used to evaluate the goals, effectiveness, and safety of the prescribed fire program.

19. Reporting and Documentation for Accomplishments and Escaped Fires

Park fire management administrative personnel will complete all reports and other documentation required by RM-18 and other NPS policies.

The completion of all individual fire reports and all additional required and, as appropriate, optional documentation is the responsibility of the burn boss or their designee. These documents constitute a permanent record of all prescribed fires. The reported data will be entered into the Wildland Fire Management Information (WFMI) System by the Area FMO and will be archived at the park fire management office.

Prescribed fires that have escapes, injuries, other serious incidents, or exceed prescriptions will be reviewed and evaluated as described in the *Fire Critiques and Annual Plan Review* (Section XI.B.).

20. Historic Fuel Treatment Map

A historic fuel treatment map will be developed to document areas of the park where prescribed fire is used to meet resource management objectives.

21. Prescribed Fire Burn Plans

Prescribed fire burn plans must follow the format and information requirements listed in *RM-18.* Information that must be in the plan includes data on: description of prescribed fire area; geographic

attributes; description of project boundaries; vegetation types, structure, and fuel model; fuels characteristics; vicinity and project maps; goals and objectives; risk management analysis and hazard rating; project complexity; organization and staffing; ignition and holding actions; public and firefighter safety; monitoring; mop-up operations; contingency requirements, protection of sensitive features; smoke management; media releases and public notice postings. The plan must also list the key weather, fuel, and fire behavior parameters needed to achieve desired results and identify ranges of acceptable parameters to obtain desired fire behavior and effects.

Park prescribed fire burn plans list pre-planned requirements (prescriptions) for initiating and continuing prescribed burn ignitions and operations. These prescriptions include:

- Identify the MMA for the fire.
- Minimum number of fire crew.
- Specific skill certification requirements for the fire crew.
- Other fire-related staff requirements.
- Range of possible ignition dates.
- Pre-ignition site preparation requirements.
- Equipment needed on-site.
- Fuel model(s) used.

Typical prescription elements and ranges of acceptable conditions for prescribed fires are summarized in Table 8 below.

Table 8. Typical Prescription Elements for Prescribed Fires

MMA (Acres)	Variable
Minimum number of crew	Determined by the individual burn plan complexity analysis
Minimum level of staff certification required	Prescribed Burn Boss Ignition Specialist Safety Officer Fire Behavior and Weather Monitor Holding Specialist
Optional Positions	Traffic Control Public Information
Range of Ignition Dates	Typically March – April, but ignitions may take place at any time of year
Site Preparation	Variable, typically includes delineate burn unit, mow outside perimeter control line, subdivide burn unit, remove downed heavy fuels
Equipment Needed	Water storage tank(s), pump(s) and hose Warning and public information signs
Fuel Models	Variable, typically includes: 1 Cured Grasses 2 Open Shrublands and Old Fields
Temperature (F)	35-80
Relative Humidity (%)	25-60
Wind Direction	Variable
Mid-flame Wind Speed (mph)	0-6, gusts to 9
1-Hour Fuel Moisture (%)	6-11
10-Hour Fuel Moisture (%)	9-15
Weather Monitoring	SARA or Albany Pine Bush remote automated weather station operational. Field weather monitoring equipment operational and on site. Favorable local National Weather Service spot fire weather forecast.
Other	Successful on-site test burn. Post-fire mop-up

22. Debris Disposal

Fire may be used to dispose of natural vegetative debris deemed infeasible or impractical to remove mechanically in a non-wildland

fuel environment (parking lot, storage yard, gravel pit, etc.). The debris may be generated from routine maintenance activities, piled debris generated from construction activities, removal of hazard trees, discarded building and administrative materials. Any material being burned for debris disposal must be classified as permissible to burn under applicable Federal, State, Tribal, and local regulations.

Burning of this debris in non-wildland fuel environments is not considered a prescribed fire under NPS policy. Debris burned in a vegetative environment is a prescribed fire under NPS policy and requires a prescribed burn plan. All debris burning will adhere to the applicable policy and procedure requirements found in DO-18 and RM-18.

2.Exceeding Existing Prescribed Burn Plan

There may be prescribed fires where the implemented prescribed fire is unsuccessful. A prescribed fire will be considered unsuccessful when it exceeds the prescriptions listed in the prescribed fire burn plan. When prescriptions are exceeded, a new WFSA will be completed and an appropriate management response will be formulated and implemented. Prescribed fires that exceed the MMA will be converted to a wildland fire and aggressively suppressed.

3.Air Quality and Smoke Management

The Clean Air Act (42 USC 7401 et seq.) requires federal land managers to protect air quality and *NPS Management Policies* address the need to analyze air quality during park planning. (For more information*: EPA-OAQPS Plain English Guide to The Clean Air Act*). States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Protection Agency. These standards have been established for several pollutants: inhalable particulate matter, sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. Elevated concentration of these pollutants can have adverse impacts on park resources and visitors.

a. Pertinent Air Quality Issues

Three air quality categories are established for the national park system areas: Class I, Class II, and Class III. MAVA is in a Class II area, meaning that the state may permit a moderate amount of new air pollution as long as neither ambient air quality standards, nor the maximum allowable increases over established baseline concentrations are exceeded.

Columbia County complies with national ambient air quality standards for carbon monoxide, nitrogen oxide, particulate matter, and lead, but is in marginal non-attainment for ozone.

Current laws and policies require that the air quality in the park meet national ambient air quality standards and that healthful indoor air quality at NPS facilities is ensured.

Authority for regulating the release of criteria pollutants has been delegated to the state. The New York State Department of Environmental Conservation is responsible for determining the impacts of releases of criteria pollutants from prescribed fire use, and where appropriate, permitting the release of smoke from prescribed fire.

b. Program of Action

MAVA manages smoke from prescribed fires under a permit from the State of New York. The volume smoke produced by prescribed fires and the areas impacted by the smoke are monitored to inform decisions on which fire management strategies and tactics will be used to limit smoke releases to permitted quantities and concentrations. The park applies to the New York Department of Environmental Conservation for this permit annually and will continue to operate within the conditions of this permit

During prescribed fires only limited amounts of fuel are typically consumed. Prescribed fires are normally small with low intensity and short duration. Where relatively large areas are burned, the burn unit is divided into smaller sections that are burned sequentially. These factors significantly limit the volume and concentration of smoke produced.

Specific goals for managing smoke and burn unit specific methods for mitigating smoke impacts will be developed in each prescribed fire burn plan and WFIP. Smoke sensitive areas, areas where smoke could interfere with public health or safety, park values to be protected, or other management concerns, are listed under broad headings below. Each heading is followed by a description of a range of appropriate mitigation measures for the resource discussed. Fire behavior, smoke behavior, and firefighter and public safety will dictate which, if any, of these mitigation measures the burn boss chooses to implement.

a. Location of Class I Airsheds

There are no Class I airsheds in the park or the region surrounding the park.

b. Smoke Sensitive Areas

The areas that could potentially be impacted by smoke are Route 9H, which bisects the park, and the hamlet of Stuyvesant Falls, which is one mile south of the park. Other areas of concern are the village of Kinderhook, located approximately two miles north, and the Columbia County Airport, located approximately five miles to the southwest of the park.

The park's primary goal is to maintain relatively smoke-free conditions in the park and surrounding area. While short-term impacts to visibility caused by smoke from prescribed fire or wildland fire within the park are not considered significant, short-term limited visibility can reduce the quality of a visitor's experience of the park.

Smoke impacts on local communities will also be considered in all prescribed fire planning and operations. When practicable, park staff will attempt to avoid significant smoke invasion of local communities.

The impact of wind direction, planned fire duration, expected smoke volume, and expected smoke cloud persistence on the park viewshed and local communities will be considered in planning and conducting prescribed fire activities.

c. Air Quality Goals and Mitigation

(a)Human Health and Safety Air Quality Goals

Goal: Maintain acceptable visual range on all public roads used by automobiles, trucks, and bicycles. If smoke moves across highly trafficked public roads, the park will make a good faith effort work with local public safety organizations to mitigate threats to public safety due to limited visibility.

Specific mitigating actions may include:

- Reducing the burn area to limit smoke production.

- Extinguishing part or all of the fire.
- Placing warning signs along roadways.
- Reducing the speed limits on roads.
- Placing staff in areas of low visibility to direct traffic flow.
- Temporarily excluding traffic from portions of the park road or other roadways.
- Contacting members of the public and informing them of the smoke impacts.

The impact of wind direction, fire duration, expected smoke volume, and expected smoke cloud persistence on visibility on roads in and adjacent to the park will be considered in planning and conducting all prescribed fire activities.

Goal: Limit smoke penetration and persistence into Kinderhook town center and areas of concentrated residential development to a maximum of two (2) days.

Except for individuals with serious asthma, emphysema, or other serious respiratory system disorder the dilute smoke found at distance from the site of combustion does not normally create a public health threat. Because smoke may be considered a nuisance due to odor and limiting visibility, the park will make a good faith effort to prevent large volumes of smoke from entering town centers and areas with a high density of residential development from the park.

Specific mitigating actions may include:

- Reducing the burn area to limit smoke production.
- Extinguishing part or all of the fire.
- Managing fire behavior to increase flame/decrease smoke.
- Monitor smoke behavior and factors that influence smoke behavior.

The impact of wind direction, planned fire duration, expected smoke volume, and expected smoke cloud persistence on town centers and areas of concentrated residential development will be considered in planning and conducting prescribed fire activities.

(b) Air Quality Goals for Resource Protection

The burn boss is responsible for ensuring that smoke monitoring data is collected, recorded, and reported. Smoke monitoring data will be used to inform fire management strategies and tactics during each fire through the WFIP. Smoke monitoring data will be used to evaluate the success of prescribed fires and wildland fire suppression.

Prescribed fire burn plans will describe holding actions that may be used to keep the fire within prescription for air quality objectives. Examples include:

- Mowing fire breaks to halt or control fire spread.
- Burning large burn units in small sections to reduce area the area burning at any one time.
- Using hose lays and pumps to wet fuels to extinguish all or a portion of the fire front, with possible subsequent re-ignition under prescribed dispersal conditions.

- Using firing crews to ignite smoldering fuels so that the fuels burn with flaming rather than with glowing combustion.

- Moping-up smoldering heavy fuels until conditions improve for smoke dispersion, at which time the fire may be reignited.

E.Non-Fire Fuel Treatment Applications

Wildland fuel complexes within MAVA are managed to achieve resource objectives and management goals such as hazard fuels reduction, landscape preservation, invasive plant management, and maintaining grassland habitat. Fuels management includes planning and implementation of treatments ranging in scale from site specific to landscape level. These treatments are designed to improve the park's ability to protect life and property, to maintain or restore the sustainability of healthy ecosystems, and to preserve or rehabilitate historic landscapes.

The range of fuel treatment options includes prescribed fire and non-fire applications (mechanical treatment, herbicide use, etc.). Non-fire applications used at MAVA are described below.

1. Mechanical Treatment and Other Non-Fire Applications

Hazard fuels at MAVA are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), or other mechanical or cultural means. Herbicides are occasionally used to reduce or otherwise manage hazard fuels.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal. Firebreaks around most structures, monuments, roads, trails, fences, etc. in the park are typically re-mowed every two to four weeks during the growing season or at least twice annually.

a. Annual Non-Fire Preparedness

All equipment and supplies will be inventoried in accordance with NPS fire and property management policies.

All equipment will be maintained in good working order and will be inspected and tested as appropriate, including inspection and testing before the start of the spring fire season. Equipment

maintenance shall include sharpening edged tools, inspecting tool handles, testing and lubricating pumps, inspecting and testing chippers, and similar activities.

As equipment is used and returned, its condition will be checked and appropriate maintenance will be performed to return it to ready condition. Damaged equipment will be repaired or replaced.

All supplies will be inventoried before the start of the fire season. During the fire season, the supplies will be inventoried with sufficient frequency to ensure that the stock of all supplies is sufficient to meet park needs.

Following the fall fire season, all fuel reduction equipment and supplies will be inventoried and stored appropriately to maintain it in good condition and to ensure its availability for future use. Additional equipment and supplies will be purchased as needed.

23. Non-Fire Treatment Restrictions

Heavy equipment including industrial mowers, large trucks, and trailer-mounted wood chippers are often used in mechanical fuel removal. Heavy equipment except mowers should usually be confined to existing roads and trails. In all cases, tracked and wheeled vehicles should only be used off roads and trails under conditions where they will not significantly disturb soils, compact soils, or break up vegetative cover.

Use of equipment and techniques are limited by the potential for direct and indirect impacts to archeological resources, the historic landscape, sensitive species, and sensitive habitats. Use of tools and equipment, including tracked vehicles, off-road wheeled vehicles, plows, and other equipment or techniques that by nature or common use are ground disturbing or and/or may crush artifacts at or near the surface should only be used when required to meet specific project objectives.

Where ground-disturbing activity is required, archeological clearance through the Assessment of Actions Form (section 106 forms) or Section 107 consultation process of the NHPA and written permission from the superintendent is required.

c. Non-fire Treatment Effects Monitoring

Fuels management monitoring will be a component of the park's fire monitoring program. Fuel levels will be monitored through visual inspection for accumulations of fuels, downed limbs, heavy growth adjacent to sensitive resources, and other applicable criteria.

Vegetation will be monitored for overall fuel load and areas of fuel accumulation. Measurable objectives include:

- Dead and downed woody fuels will be routinely removed from paths, trails, roads, visitor use areas and their margins.
- Herbaceous vegetation in visitor and staff use areas including picnic areas, trail heads, and waysides will be kept mowed to a height of less then six inches.
- Fuel breaks of five to fifty feet will be maintained around buildings, monuments, signs, flagpoles, and other fire-sensitive infrastructure. Within these fuel breaks, all herbaceous vegetation will be cut to a height of less then six inches, dead and downed woody vegetation will be removed, leaves or other debris will be removed if their depth exceeds six inches.

Monitoring will be conducted visually as part of the park's maintenance and visitor protection programs through the resource management and fire management programs.

Protocols for formal monitoring efforts will follow the *NPS Fire Monitoring Handbook*.

d. Critiques of Non-Fire Fuel Reduction Projects

Critiques of fuel reduction undertaken as part of the park's normal maintenance will be by discussion between the park fire management coordinator and the chief of maintenance. These fuel reduction activities will be summarized as part of the park's annual fire report.

Critiques of hazardous fuel reduction projects will follow the same methods as the prescribed fire critiques described in Section V.B.5 of this plan. All fuel reduction projects will be critiqued verbally after they are completed. A written summary of the critique will be placed in the fire management files and a summary of all fuel reduction projects accomplished each year will be included n the annual fire program report to maintain a permanent project record. The park fire management coordinator or project supervisor is responsible for conducting the verbal critique and completing the written summary. Additional documentation may be included in the project record at the discretion of the park fire management coordinator.

e. Non-Fire Cost Accounting

Fuel reduction projects where the primary goal is reducing hazard fuels may be funded through the FIREPRO funds. Most non-fire fuel treatments at MAVA have multiple goals including landscape maintenance, exotic species control, habitat maintaining grassland bird habitat, and hazard fuel reduction. These projects are typically funded using ONPS funds and are generally undertaken as part of the parks maintenance program.

Supplemental funding from other sources may be used for any appropriate fuel reduction project. All costs associated with fuel reduction will be tracked and documented in accordance with NPS policy and guidance.

f. Non-Fire Reporting and Documentation

All fuel reduction records and reports required will be completed, entered into appropriate databases, and retained as described in DOI RM-910, NPS DO-18 and RM-18. Incident commanders and work supervisors are responsible for completing and submitting records and reports on individual projects. The park fire management coordinator is responsible for ensuring the completion and submittal of all appropriate reports and annual data summaries.

g. Annual Non-Fire Planned Project List

This list is located in Appendix J.

F.Emergency Rehabilitation and Restoration

Restoration and rehabilitation of non-fire project areas will normally be planned and conducted as a normal part of the planning and implementation process for non-fire projects, as described in section IV.B.8, of this document. In exceptional cases, where emergency stabilization, rehabilitation or restoration is required, the planning and implementation of the work will follow all applicable regulations and guidelines.

See Appendix N for information about burned emergency area stabilization and rehabilitation (BAER) procedures.

V.ORGANIZATION AND BUDGET

A.Introduction

MAVA is a small sized unit of the NPS with approximately 12 permanent staff and approximately 4-6 summer seasonal staff. The chief ranger has the primary responsibility for most wildland fire management activities at the park.

MAVA uses the incident command system (ICS) as a guide for fireline organization. All individuals participating in fire related operations must meet or exceed the NWCG qualification requirements for wildfire suppression and prescribed fire operations for the task to which they are assigned.

B.FIREPRO Funding

Annual Federal wildland fire management appropriations provide NPS FIREPRO funding for necessary expenses for fire planning and oversight functions, along with budgeted activities necessary to prepare for the normal fire season, and for the development and implementation of the wildland fire emergency suppression, emergency rehabilitation, and hazard fuels reduction program.

The park is not a base funded FIREPRO park and does not have FIREPRO funded positions. ONPS funds (annually appropriated park operating funds) are used to base fund the park's fire management program. FIREPRO funding is available for approved fire training, prevention, preparedness, suppression, prescribed fire and other fire related research, wildland/urban interface mitigation, hazard fuels treatment, and burned area emergency stabilization and rehabilitation projects. Related equipment, personal protective equipment and supplies may be acquired with FIREPRO funding. Financial grants may be provided to qualifying local fire departments through the Rural Fire Assistance Grant Program (RFA).

The park fire coordinator makes all FIREPRO funding requests to the Area FMO.

C.Park Organizational Structure

1.Superintendent

The superintendent of MAVA is responsible for all fire management activities conducted at the park and is accountable to the regional director. The superintendent is responsible for:

- Ensuring that the park fire management plan is current and understood by all park personnel and that operations are conducted in accordance with the fire management plan.
- Supporting and encouraging employee involvement in wildland fire prevention and education programs.
- Providing training opportunities and making employees available to assist NPS and other land management agencies in emergency wildland fire suppression.
- Integrating wildland fire prevention and education into all management functions, including interpretation, visitor protection, maintenance, and administration.
- Developing cooperative agreements and/or memoranda of understanding with local land management agencies and wildland fire protection groups to coordinate wildland fire management, prevention and education programs.
- Developing and providing public wildland fire prevention and education programs which supports the park's resource management program.

The superintendent has delegated responsibility for the fire management program to the chief ranger, who serves as the park fire coordinator. The superintendent has directed the other park staff to provide support to the MAVA fire management program. The chief ranger coordinates the assignment of personnel and resources from other divisions.

2.Chief Ranger

The chief ranger holds the delegated authority for carrying out the park's fire management program. The chief ranger serves as the park fire coordinator. As park fire coordinator, the chief ranger coordinates fire prevention, education, preparedness (training, planning, staffing, supply, preparedness, etc.), fire mobilization, fire suppression, non-fuel treatments and prescribed fire use within the park.

The chief ranger is responsible for managing the all aspects of the park's fire management programs including data collection for input into various wildland fire related computer systems (NFDRS, WIMS, ROSS, IQCS, etc.), FIREPRO budget management, and other fire-related activities. Additional responsibilities are to design and implement the park public education program. This program allows the public, interested organizations, park neighbors, and park cooperators to become aware of the park fire situation and the effects, risks, and benefits of wildland fire, fire suppression, and prescribed fire.

The chief ranger coordinates fire management activities with the other division chiefs as directed by the superintendent. The superintendent supervises the chief ranger.

3.Administrative Officer

The administrative officer (AO) is advised of all fire account transfers and allocations. The AO opens emergency preparedness and emergency suppression accounts upon written notification from the chief ranger. The superintendent supervises the administrative officer.

4.Other Divisions and Staff

By direction of the superintendent, all park staff may be directed to support the fire management program.

All park employees will take advantage of appropriate opportunities to educate the public about the positive values of wildland fire and the manner in which the NPS manages fire to meet ecosystem management objectives.

The development, training, and certification of personnel for fire management activities will be carried out in a manner that includes all divisions and ensures flexibility in providing effective fire management responses. Any member of the park staff may be directed to assist with wildland fire and prescribed fire management programs in accordance with his or her qualifications and abilities.

Non-fire qualified personnel can perform many functions such as time recording, dispatching, motor vehicle operation, etc.. Supervisory personnel are responsible for initiating and implementing operational activities in accordance with approved plans and procedures.

Fire management responsibilities and assignments to wildland fire and prescribed fire activities will be made on the basis of qualifications and availability. Personnel will only engage in those activities for which they are currently qualified as described in the NPS wildland fire qualification and certification system. Examples of these certifications include

firefighter, incident commander, prescribed burn boss, and holding specialist.

5. North Country Area Fire Management Officer

The North Country Area fire management officer (Area FMO) is the FIREPRO funded fire management officer for Acadia National Park and the North Country Area Fire Management Park Group (NOCOPG). NOCOPG is comprised of 13 NPS units in Northern New England and Northern New York State.

MAVA has an inter-park agreement with Acadia National Park to provide assistance with fire management issues through the area FMO. A copy of the agreement is located in appendix E.3.

The Area FMO:

- Provides the first level of technical assistance to the park for all fire management planning, and implementation activities. This includes assistance for managing the park's use of fire management programs such as the National Fire Danger Rating System, the Weather Information Management System (WIMS), the NPS Wildland Fire Computer System (SACS), the resource ordering system (ROSS), the Incident Qualification and Certification System (IQCS), Fire Program Analysis (FPA), Wildland Fire Management Information (WFMI) System, FIREPRO budgeting, etc.

- Assists with the park's wildland fire qualification and certification program, fire monitoring, fire training and mobilizations, development of preparedness, suppression, wildland/urban interface, fuels management and prescribed fire operational plans, development of cooperative agreements with local and state agencies, and administration of Rural Fire Assistance Program grants to local fire departments. The area FMO coordinates fire management needs between the North Country Area parks and with the Northeast Region Fire Management Office, the Eastern Interagency Coordination Center (EICC) and the Northeastern Fire Coordination Center (NECC).

- Assists the park in acquiring needed resources and equipment, and in preparing FIREPRO funding requests.

- May be requested to serve on an incident management team as an agency representative regarding fire management operations.

- May chair or otherwise serve on review panels and critiques related to park fire management activities.

Park requests for assistance from the Area FMO will be coordinated through the park fire coordinator. Requests should be made as far in advance as is practical.

6.North Country Area Fire Prevention Specialist

The North Country Area fire prevention specialist (Area FPS) is the FIREPRO funded FPS position for Acadia National Park. The area FPS provides assistance to MAVA in conducting fire prevention and education programs. The area FPS may also assist MAVA in evaluating park structures for wildland/urban interface issues and with an outreach interface program to park neighbors and local governmental bodies and agencies.

7.Regional Fire Management Officer

The Northeast Region fire management officer (Regional FMO) has delegated authority for the management of the region's fire management program. The Regional FMO is responsible for planning, training, technical assistance, budget prioritization, coordination, and interagency issues for units of the NPS in the Northeast Region. The Regional FMO assures that the regional fire management program is conducted in accordance with established policy and procedures and that FIREPRO funds are used appropriately.

The regional FMO represents the parks in the Northeast Region to the NPS Fire Management Program Center, the Eastern Area Coordination Center (EACC), and other regional and national fire management organizations.

The Regional FMO may chair or otherwise serve on review panels and critiques related to park fire management activities.

8.Northeast Region Prescribed Fire Specialist

The regional prescribed fire specialist (regional PFS) provides technical assistance to the park on fire ecology, prescribed fire and fuels treatment matters.

9.Fire Management Program Center

The NPS Fire Management Program Center (FMPC) is located at the National Interagency Fire Center in Boise, Idaho and provides national leadership, direction, coordination and support for NPS fire, aviation and incident management. The primary purposes of the FMPC are:

- Achieving national mandates for firefighter, NPS employee and visitor safety.

- Protecting natural and cultural resources.

- Maximizing partnerships with federal, state, local and tribal entities, in order to achieve the greatest benefit for park resources.

- Achieving and maintaining the highest standard of professionalism, using state-of-art concepts, technologies and practices.

D.Superintendent Responsibilities

The superintendent will ensure that the park fire management plan meets the requirements of DO -18 to guide a fire management program and that the plan is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities. The superintendent will review and certify this plan.

The superintendent is responsible for periodically assessing and certifying that management of wildland fire actions are acceptable.

The superintendent will ensure that the park management staff is adequately versed in the Departmental and NPS policies and procedures related to fire.

E.Interagency Coordination

Interagency cooperation is vital to the full realization of NPS fire management program objectives. The ability of a single agency to implement a fire management program of any complexity is limited without coordination with and assistance from other organizations.

1.Local Coordination

MAVA is in the process of developing cooperative agreements with the Stuyvesant Volunteer Fire Departments that supports structural and wildland fire suppression in the park and surrounding areas. This fire department offers significant support to the park fire management program.

2.Area Coordination

Through an interpark agreement with Acadia National Park, MAVA is a member of the North Country Area Fire Management Park Group (NOCOPG). NOCOPG is comprised of 13 NPS units in Northern New England and Northern New York State. The Acadia National Park FMO serves as the North Country Area FMO. The Area FMO coordinates fire

management needs between the North Country Area parks and with the Northeast Region Fire Management Office, the Eastern Interagency Coordination Center (EICC) and the Northeastern Fire Coordination Center (NECC).

3.Regional Coordination

The NPS Northeast Region is an associate member of the Northeast Fire Compact and is represented by the Regional FMO. Federal, state and Canadian provincial fire management agencies have agreed to share fire resources through this compact. Mobilization and dispatch of fire resources (staff, equipment, and supplies) is through the Northeastern Coordination Center (NECC) via the Area FMO. A list of available resources and detailed procedures for requesting assistance are documented in the Northeast Region Fire Mobilization Plan. The mobilization plan is updated annually. National Coordination. The NPS is a member of the Interagency Cooperative Fire Agreement and the National Wildfire Coordinating Group (NWCG). Participating members of the agreement include the U.S. Forest Service of the Department of Agriculture, the Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service of the Department of the Interior. Through additional agreements, state forestry and wildland fire agencies, private forestry companies, and the National Association of State Foresters participate in this agreement.

The principle objective of the interagency cooperative fire agreement is the cooperative and cost effective sharing of fire resources during national and regional emergencies. Through this agreement, a wide variety of fire resources and support services can be made available to units of the NPS. All requests for assistance through this agreement are directed to the Eastern Area Coordination Center through the Area FMO.

F.Interagency Contacts

Doug Jones (Area FMO, Acadia NP, ME)	**(207) 288-8780** (207) 266-4570 (Cell)
Paul Head (Regional FMO, Boston, MA)	**(617) 223-5067** 978-461-0722 (Cell) 1-800-SKY-PAGE pin #2679759
Tim Trowbridge Stuyvesant Volunteer Fire Department	**518-755-4506** (Cell)
Chris DiCinto Forest Ranger Columbiaville, NY	**518) 828-0236**

New York State Department of Environmental Conservation:
Division of Forest
Protection and Fire Management
625 Broadway
Albany, NY 12233
518-402-8552

National Weather Service
Binghamton, New York
(607) 729-1597

G. Fire-Related Agreements

Interagency cooperation is vital to the full realization of NPS fire management program objectives. The ability of a single agency to implement a fire management program of any complexity is limited without coordination with and assistance from other organizations.

MAVA is in the process of developing cooperative agreements with the Stuyvesant Volunteer Fire Department that supports structural and wildland fire suppression in the park and surrounding areas. This fire department offers significant support to the park fire management program.

A permit for the release of smoke from the State of New York is required for the use of prescribed fire. The park applies to the New York State Department of Environmental Conservation for this permit annually and will continue to operate within the conditions of this permit.

MAVA has an inter-park agreement with Acadia National Park to provide assistance with fire management issues through the area FMO. A copy of the agreement is located in Appendix E.4.

VI. MONITORING AND EVALUATION

The primary goals of fire monitoring and evaluation are to:

- Record basic information for all fires.
- Document post-fire effects and burned area rehabilitation needs.
- Follow trends in fuels and plant communities.
- Improve fire planning and fire management.

A. Monitoring

MAVA has developed a monitoring program to assess accomplishments and to determine effects of management activities on cultural and natural resources.

This monitoring program includes the four levels of monitoring described in the NPS Fire Monitoring Handbook:

- Environmental/Planning
- Fire Observation
- Short-term Change
- Long-term Change

These monitoring levels and the activities MAVA is taking to achieve effective fire monitoring are described below:

1. Level 1 Monitoring – Environmental/ Planning

Level 1 monitoring provides for gathering the background data needed to make informed strategic and tactical decisions on wildland fires and prescribed fires. This data includes:

- Fire history
- Fire regimes
- Weather patterns and extremes
- Fuel and fire behavior models
- Values to be protected
- Any other information needed to understand the park's fire situation.

This data is found in the fire management plan, the environmental assessment associated with the FMP, the resource management plan, weather data from Saratoga NHP's fire weather observation station (NYzzSARA), and park fire records including individual fire records (form DI-1202) and annual fire summary reports. Other sources of information are also used.

Level 1 data is managed by the MAVA chief ranger's office. The park fire management officer and resource management specialist will make Level 1 data available to the incident commander and other fire management staff as needed.

Access to some Level 1 information (location of archeological sites, location of rare or sensitive species, or other data the could lead to injury

to a sensitive resource) may be restricted to upper level fire managers or fire staff working on-site. Park staff will provide the incident commander all available information needed to make informed fire management and resource protection decisions.

2. Level 2 Monitoring - Fire Observation

All fires that have the potential to threaten values to be protected will be monitored by direct observation. This includes wildland fires and prescribed fires.

Level 2 monitoring provides a basic overview of the fire by documenting fire events, fire and smoke behavior, and the fire situation throughout the life of the fire. Data including:

- Weather conditions.
- Fire behavior (flame-length, rate of spread, fire intensity, fire residence time, etc.).
- Smoke behavior (volume, density, direction of spread, etc.).

These conditions will be recorded and reported in the narrative section of the DI-1202; Individual Fire Report form. Data from these forms will be entered into the NPS fire database.

3. Level 3 Monitoring - Short-Term Change

At MAVA, Level 3 monitoring records information on:

- Fuels and changes in fuel characteristics (fuel types, fuel density, fuel reduction, etc.).
- Short-term vegetation change (within 1 year of fire) within a fuel complex/plant community.
- Burned area rehabilitation needs related to soil erosion.

Any other information on short-term changes in resource condition needed to determine if management objectives of the fire program are being achieved should also be recorded.

For level 3 monitoring to be fully effective in providing park managers with useful comparative data, pre-burn and post-burn monitoring data must be collected. Level 3 monitoring is required for each prescribed fire unit. Specific monitoring protocols and objective will be described in each prescribed fire burn plan.

The intensity of level 3 monitoring may vary. Some burn areas will require intensive and extensive sampling (ex. research fires, fires burning in sensitive species habitat, etc.). Other burn areas will require only limited data collection (ex. hazard fuel reduction areas). In all cases, monitoring intensity will be appropriate to meet management goals, document resource condition, and will follow NPS Fire Monitoring Handbook guidelines and protocols.

4. Level 4 Monitoring - Long-Term Change

Level 4 monitoring attempts to identify and document significant changes or trends related to fire or fire absence over long periods of time (>1 year - >10 years). Many fire effects, such as changes in the composition of plant communities, that may not be detectable during short-term monitoring, can be documented using long-term monitoring.

All prescribed burn units will receive level 4 monitoring. Other areas will receive level 4 monitoring as appropriate to meet management goals. Level 4 monitoring of burned areas will normally be achieved by continuing level 3 monitoring protocols for an extended period.

The pre-burn monitoring plots established in 2001 and 2002 (see description in level 3 above) will be monitored on a cyclic basis to collect baseline and fire effects data to level 4 monitoring standards and duration.

B. Fire Monitoring Protocols

MAVA will follow the fire monitoring protocols documented in the *NPS Fire Monitoring Handbook* for all levels of fire monitoring.

All prescribed burn units will receive level 4 monitoring. Monitoring protocols for prescribed burn units will be described in the individual prescribed fire burn plans.

All monitoring will result in GIS-compatible digital data whenever possible.

The monitoring protocols used by the park will be reviewed and approved by the regional prescribed fire specialist.

C. Fire Monitoring Plan

Monitoring is a key component of all aspects of fire management at MAVA. It informs fire planning, preparedness, implementation, suppression, and rehabilitation. Monitoring is essential to assess the accomplishments of the fire management program and to determine the effects of wildland fire and prescribed fire use on park resources. The fire monitoring program at MAVA follows the guidelines and protocols described in the NPS Fire Monitoring Handbook and DO-18. The activities MAVA is taking to achieve effective fire monitoring are described in the park fire effects monitoring plan (Appendix F).

VII.FIRE RESEARCH

The primary objective of fire research in the NPS is to provide information for making fire management decisions. Research plays a critical role in fire management programs by identifying area specific fire regimes; determining whether human activity has affected native ecosystems; developing techniques for predicting fire behavior; documenting and analyzing fire effects and other topics as needed.

Research may also provide the framework needed to justify maintaining historic scenes, investigate techniques to create these scenes, and determine the impacts of fire control actions and management on cultural and natural resources. Research serves to define the natural and aboriginal role of fire for use in formulating and implementing such fire use management actions as prescribed fires, suppression strategies and tactics, hazardous fuel abatement, and prevention measures.

A.Previous and Ongoing Fire Research

A large body of scientific information on the effects of fire and fire exclusion in areas similar to the park already exists. Implementation of the park's fire management plan should not be contingent on completion of research concerning the fire regime and fire effects on vegetation.

There is limited funding available for fire research, but if it is determined that more data is critical, managers may submit requests through the annual FIREPRO budget call. Additionally, requests for research funding may be made through the Interagency Joint Fire Science Program.

B.Additional Fire Research Needs

As the MAVA fire management plan is implemented, additional research needs may be identified. Current fire research needs at MAVA include determining:

- The historical role of fire in natural and Native American influenced fire regimes.
- The use of fire to convert field cover from exotic and cool-season grasses to native and warm season grasses and forbs.
- The efficacy of fire in reducing invasive woody vegetation in fields.
- The effects of prescribed fire on air and water quality, riparian vegetation and individual species habitat.

VIII.SAFETY

A.Public Safety Issues and Concerns

1.Visitor Evacuation

In 2002 MAVA received 16,036 visitors to the park. During periods of high visitor use, the parking lot, sections of park roads, and historic structures may be crowded.

Crowding and heavy traffic on roads and in parking areas could increase the time needed to evacuate the park in an emergency and increase the response time of firefighters, fire fighting equipment, and emergency equipment. Visitors hiking or bicycling on park trails would be at risk from an uncontrolled wildland fire and could be difficult to locate and evacuate in an emergency.

2.Smoke Management

Smoke from fires could obstruct vision and lead to bicycle or motor vehicle accidents. Speed limits on park roads are low, but higher speed limits on adjacent highways could create additional hazard. Smoke could cause respiratory distress for individuals with compromised respiratory systems. Smoke density and volume is expected to be highest in wildland fires, lowest in prescribed fires.

B.Mitigating Safety Issues

Public safety issues are mitigated through this FMP by:

- Setting protection of real property as a high value. This will generally (except when human health and safety would be threatened) lead to aggressive suppression of fires threatening inholdings and adjacent lands.
- Including the use of non-fire and fire methods to reduce hazard fuel loading.
- Providing for park staff to work with local and regional public safety organizations to control traffic when smoke impairs visibility.
- Including smoke management and reduction in all park fire planning, fire suppression and fire use decision criteria.
- Conducting all prescribed fires in accordance with approved prescribed fire burn plans that include smoke management strategies and threshold criteria.

- Providing for closure of all or part of the park and restricting activities within the park during periods of very high or extreme fire danger (NFDRS Class IV or V).

- Providing for cooperative fire management with local fire departments.

- Providing information to the public on wildland fire, prescribed fire use, and preparedness along the urban-wildland interface (see section VII below).

IX.PUBLIC INFORMATION AND EDUCATION

The goals of the park's fire information and education program are to:

- Provide accurate and timely information to the public, cooperators, government agencies, and others on fires and fire use within and adjacent to the park.

- Reduce the incidence of human-caused fires through public education and awareness.

- Interpret the application of prescribed fire and, when appropriate, the use of wildland fire to achieve resource management objectives.

- Provide information on the wildland/urban interface and mitigation measures for minimizing the wildland/urban interface risk.

A.Public Information Capabilities and Needs

Through use of interpretive staff, other staff, and, where appropriate, trained fire information specialists temporarily assigned to the park, MAVA has the capability to:

- Rapidly and accurately, provide information on wildland fires and prescribed fire application within the park, park fire goals, the fire situation, fire effects, and strategies and tactics being used to the public, the media, organizations, and government officials.

- Work with adjacent land owners and fire control agencies on issues of preparedness and suppression at the wildland-urban interface.

- Provide on-site fire information and interpretation to park visitors.

- The North Country area fire prevention specialist is a resource available to the park for consultation, support and assistance in providing public information and education.

Information will be disseminated using various media. These media may include:

- Signs, posters, and posted notices.
- Distribution of printed materials.
- Fire preparedness and fire effects information in interpretive programs.
- Press releases.
- Public outreach.
- Other methods as appropriate.

B.Public Information "Step-Up"

At all levels of fire danger the park will maintain staff and office capabilities to provide wildland fire and prescribed fire application information (preparedness activities, purpose, size, location, status, restrictions on park use, etc.) to the public, the media and government agencies as appropriate. During most fire-years, these duties will be completed by park staff. Park staff will provide information as part of their normal duties. Park staff or a fire information specialist may occasionally be assigned to a fire specifically to provide accurate and timely information to the public and the media.

During periods of especially high fire incidence, high fire risk, or where there is a very high public or media interest in park fire activities, a public information specialist may be assigned to the park or to a fire.

See the park staffing step-up plan (Appendix E.) for more information.

X.PROTECTION OF SENSITIVE RESOURCES

A.Archeological/Cultural/Historic Resources Requiring Special Treatment or Protection

MAVA was established to preserve landscapes, structures, and artifacts associate with the Martin Van Buren's residency. These cultural resources make up the very fabric of the park and must be considered and protected during all fire planning and fire management activities.

1.Historic Landscapes

The historic and designed landscapes at MAVA are among the park's most vital resources.

The historic landscapes of MAVA encompass the entire park and the surrounding area. Protecting this pattern of vegetation, especially in forested areas and orchards, is a critical component of the fire management plan.

The landforms that make up the basement of the historic landscape are critical elements of the landscape. No large-scale alteration of the surface should be undertaken during fire suppression. Fire line construction should be restricted to the minimum area and depth needed to preserve human health and safety and effectively manage the fire.

Fires that threaten to alter desired patterns of land cover (i.e. fires with sufficient intensity to kill trees in forested areas and orchards where these are the desired land cover) should normally be aggressively suppressed.

Activities that disturb soils or remove vegetative cover (especially near-surface roots systems) should be avoided where possible. Where fire suppression does disturb soils or vegetative cover, post-fire monitoring and appropriate rehabilitation should occur.

2.Historic Structures

The historic wooden buildings are susceptible to direct damage or destruction from fire and should be offered very high levels of protection in all planning and fire suppression activities.

Earthworks will rarely sustain any direct damage from fire. Post-fire erosion can significantly impact earthworks if the vegetation is burned off earthworks. Suppression activities that disturb the vegetation, disrupt the soils, or alter the shape of earthworks should be avoided.

3.Archeological Resources

MAVA contains significant archeological resources. These sites include pre-historic and historic sites, including Native American sites.

The large number and wide distribution of the known archeological resources makes it highly likely that many more undocumented archeological resources, ranging from isolated artifacts to complex archeological sites, are present in the park.

Fire effects on subsurface archeological resources are typically limited to artifacts within several centimeters of the surface and artifacts adjacent to burning subsurface roots. In these areas, where artifacts are adjacent to fuels, fires may elevate soil temperatures sufficiently to destroy organic materials including wood, leather and paper and to alter or damage ceramics. During fires of exceptional intensity or duration (associated with heavy fuels) soil temperatures may be elevated to a greater depth, so the risk of damage to subsurface archeological resources may be significantly increased.

Archeological resources and their context are easily destroyed by soil disturbance. Significant direct impacts (disturbance, breakage, removal from context, etc.) and indirect impacts breakage or destruction due to soil compaction, soil disturbance, post-fire erosion, etc., to archeological resources from fire suppression activity are possible. Activities such as the construction of "hand line", the use of heavy equipment to construct fire lines or manipulate fuels, and other similar activities have a high likelihood of damaging archeological resources and require the superintendent's approval. Post-fire soil erosion following soil-disturbing suppression activities poses a significant threat to archeological sites, artifacts, and their context.

In the event of a major fire, the regional archeologist may dispatch a professional archeologist to serve as resource advisor on the fire.

B.Natural Resources Requiring Special Treatment or Protection

Natural resources requiring special treatment or consideration include landforms, patterns of land cover (plant communities), sensitive species and their habitats, wetlands, and air quality as it relates to the visibility and interpretation of historic landscapes.

1.Landforms and Land Cover

Landforms and the patterns of land cover are natural elements of the park's historic landscape. Preserving these resources is a critical element of the park's legislated mission. See section A. above for more information regarding these resources.

2.Sensitive Species

No state or federally listed species are currently known to exist within the park. If such species are discovered in the future, this document will be updated accordingly.

3.Sensitive Habitats

Use of heavy equipment, fire line construction, and other soil disturbing activities should be avoided when possible in sensitive plant habitats.

Prescribed fire may be applied to fields on a cyclic basis as part of the park's historic landscape maintenance and rehabilitation program. Prescribed fire should be applied to fields early in the year or in the fall to avoid impacting nesting grassland birds.

When wildland fires occur or when prescribed fires are planned in known habitat for federally listed species, consultation with the United States Fish and Wildlife Service (USFWS) may be required. The park may be exempted from this consultation under emergency conditions.

4.Air Quality and Park Scenic Resources

Smoke from wildland fires and prescribed fires at MAVA may create short-term impacts to the visual air quality of the park. However, because:

- Only a small number of wildland fires or prescribed fires occur annually in or around the park.
- Wildland fires in the park and surrounding area rarely burn for more than a few hours, and virtually never burn for more then 24-hours.
- Prescribed fires typically burn for less then three hours.

Smoke impacts (at current levels) to the visual air quality related to park scenic resources are not considered significant.

5.Soils

Many soils at MAVA have significant erosive potential due to their composition, their location (on steep slopes, adjacent to flowing water) or a combination of these features. The potential for creating conditions that will result in destructive soil erosion is markedly increased by disrupting vegetative cover and ground disturbing activities.

All fire planning and suppression activities at MAVA will consider protection of soils and protection of vegetation that stabilizes soils. When ever practicable, within the context of protecting human health and safety, park resources, and private and public property, soil disrupting activities will be avoided.

Where wildfire suppression or other fire-related activity disturbs soils or disrupts vegetative cover, the disturbed areas will be monitored after the fire and appropriate rehabilitation measures will be undertaken. Special attention will be paid to areas with steep slopes, areas adjacent to streams, and areas with soils with high erosive potential.

C.Developments, Infrastructure, and Improvements Requiring Special Consideration

Park infrastructure and other improvements that are sensitive to fire effects include the visitor center and headquarters buildings, historic structures, and other buildings, informational and interpretive signs, equipment and supply storage areas, state highway, local roadways, and trails adjacent to the park. Maintaining fire breaks around infrastructure, removing accumulations of fuels, completing annual preparedness activities, and maintaining the capability to suppress fires that threaten park infrastructure aggressively mitigates threats to these resources.

D.General Actions to Prevent or Mitigate Negative Impacts

Wildland fires, within the park, that threaten archeological, cultural, historic or natural resources or park improvements will be suppressed aggressively. Exceptions to this include, but are not limited to when:

Human health and safety would be compromised, or

- The incident commander determines that the damage to significant park resources caused by aggressive suppression outweighs the potential damage to resources at risk from wildland fire

The park will maintain the appropriate resources (staff and equipment) and level of preparedness, as defined by FIREPRO analysis, to engage in initial attack in response to wildfires within the park.

The park will undertake appropriate fire detection and preparedness activities as defined in this plan and the step-up plan to protect park resources and support the control of wildland fires.

Wildland fires on lands outside of the park that threaten to move across the park to infrastructure will be monitored closely so that appropriate park action can be taken to protect park resources. NPS fire suppression staff may assist in monitoring or suppressing fires adjacent to the park where property owners grant permission, where appropriate legal authority exists, and when they are so directed by the incident commander.

The value of infrastructure and improvements within the park surrounding communities and their vulnerability to wildland fire damage will be considered in all wildland fire planning and suppression activities.

XI.FIRE CRITIQUES AND ANNUAL PLAN REVIEW

A. Introduction

1. Scope

All wildland fires and fire-related incidents will be reviewed.

2. Reviews

Reviews are conducted for one or more of the following purposes:

a. Examine the progress of an on-going fire incident and confirm effective tactical decisions or correct deficiencies.

b. Identify new or improved fire management procedures, techniques or tactics.

c. Compile consistent and complete information to improve or refine site, regional or national fire management programs.

d. Examine fire-related incidents in order to determine cause(s), contributing factors, and where applicable, recommend corrective actions. If negligence is indicated, the circumstances will be reported and investigated in accordance with applicable regulations, policies, or guidelines.

e. Determine the cost effectiveness of fire management activities.

3. Authority

The authority to convene a formal fire review rests with the park superintendent, the regional director for the Northeast Region, or the associate director for visitor and resource protection.

4. Incident Types

All wildland fire incidents that result in human entrapment, fatalities, or serious injuries, or incidents with the potential for such results, will be investigated and reviewed.

5. Purpose

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific fire or fire management activity. The review will identify commendable actions, techniques, and decisions, as well as areas that need improvement. Reviews are intended to resolve operational issues, not impose punitive actions.

B. Fire Reviews

1. "Hotline" Review

The purpose of the hotline review is to examine the progress of an on-going fire incident, regardless of size. The review will provide a confirmation of the decisions being made daily in the Wildland Fire Situation Analysis or determine where the decision process has been faulty and what corrective actions are needed.

The "hotline" review is normally conducted by the park FMO (or an official who has designated fire program management responsibilities) in conjunction with the incident commander on the fire.

These reviews require no special reporting. Documentation of "hotline" reviews will be included in the normal fire report narrative.

2. Incident Management Team (IMT) Closeout and Review

The park superintendent will conduct a closeout review with any Type II or Type I incident management team (IMT) assigned to a fire in the park prior to their release from that fire incident. The purpose of this review is to ensure complete transition of the incident management back to the unit and to evaluate the status of any remaining incomplete fire business. RM 18, Chapter 13, Exhibit 1 contains a sample of a Close-Out Review with an incident management team.

3. Park Level Review

The park superintendent, or their designated representative, will conduct a park level review of all fire incidents. The Acadia National Park FMO will conduct informal fire reviews for low complexity wildland fires. Formal reviews may be conducted for more complex fire incidents as determined by the park superintendent.

The purpose of the review is to provide the park superintendent with information to recognize commendable actions and/or take needed corrective action(s). Costs associated with the review will be charged to the account assigned to the fire, with the approval of the regional fire management officer. A copy of the complete report will be sent to the regional fire management officer, who will review it and, if appropriate, forward a copy to the Fire Management Program Center.

4. Regional Level Review

A regional level review may be conducted for any fire that:

a. Crosses a park's boundary into another jurisdiction without the approval of an interagency agreement.

b. Results in adverse media attention.

c. Involves serious injury to 1 or 2 personnel, significant property damage, or an incident with potential for such results.

d. Results in controversy involving another agency.

5. National Level Review

A national level review may be conducted for any fire that involves Service wide or national issues, including:

a. Significant adverse media or political interest.

b. Multi-regional resource response.

c. A substantial loss of equipment or property.

d. A fatality, or multiple, serious fire-related injuries (3 or more personnel).

e. Any other fires that the associate director for visitor and resource protection, wants reviewed.

6. Entrapment and Fire Shelter Deployment Review

Fire shelter deployment is defined as the use of a fire shelter for its intended purpose in any situation other than training. Entrapments and fire shelter deployments will be reviewed in order to gather complete and accurate information to determine the reasons for the deployment. All entrapments and fire shelter deployments will be reported immediately to the regional fire management officer. All entrapments and fire shelter deployments will be investigated as soon as possible after the deployment incident.

C. Program Reviews

1. Operations Evaluations

Operations evaluations of the park may include review of fire management program to assure compliance with established Service standards.

2. Annual Fire Program Review

The park superintendent will convene an ad-hoc team to review park fire activity during any year in which significant, unusual or controversial fire activity occurs. The review team will analyze the reports from any other reviews to determine what, if any, operational changes should be initiated. The review team will develop findings and recommendations and establish priorities for actions.

3. FIREPRO Review

The NPS Fire Management Program Center may conduct an audit of the park's fire management program and use of FIREPRO funds. This review will be completed on a schedule set by the Fire Management Program Center.

XII.CONSULTATION AND COORDINATION

This FMP and the associated EA have been prepared by Wildland Fire Associates with assistance from the Regional FMO, Area FMO, and staff from MAVA including the park fire management coordinator, chief ranger, chief of maintenance, and others. The park fire management coordinator, all park division heads, the superintendent, the Area FMO and the Regional FMO have reviewed these documents.

These documents were subject to public review during the review of the draft FMP and during review of the environmental assessment associated with this plan. Review

comments were also solicited from a variety of cooperators and organizations. Comments were reviewed and incorporated into this document as appropriate.

XIII.APPENDICES

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B. Glossary

National Fire Plan
Glossary of Wildland Fire Terms

A

Aerial Fuels: All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

Aerial Ignition: Ignition of fuels by dropping incendiary devices or materials from aircraft.

Air Tanker: A fixed-wing aircraft equipped to drop fire retardants or suppressants.

Agency: Any federal, state, or county government organization participating with jurisdictional responsibilities.

Anchor Point: An advantageous location, usually a barrier to fire spread, from which to start building a fire line. An anchor point is used to reduce the chance of firefighters being flanked by fire.

Aramid: The generic name for a high-strength, flame-resistant synthetic fabric used in the shirts and jeans of firefighters. Nomex, a brand name for aramid fabric, is the term commonly used by firefighters.

Aspect: Direction toward which a slope faces.

B

Backfire: A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convection column.

Backpack Pump: A portable sprayer with hand-pump, fed from a liquid-filled container fitted with straps, used mainly in fire and pest control. (See also Bladder Bag.)

Bambi Bucket: A collapsible bucket slung below a helicopter. Used to dip water from a variety of sources for fire suppression.

Behave: A system of interactive computer programs for modeling fuel and fire behavior that consists of two systems: BURN and FUEL.

Bladder Bag: A collapsible backpack portable sprayer made of neoprene or high-strength nylon fabric fitted with a pump. (See also Backpack Pump.)

Blow-up: A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or to upset control plans. Blow-ups are often accompanied by violent convection and may have other characteristics of a firestorm. (See Flare-up.)

Brush: A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

Brush Fire: A fire burning in vegetation that is predominantly shrubs, brush, and scrub growth.

Bucket Drops: The dropping of fire retardants or suppressants from specially designed buckets slung below a helicopter.

Buffer Zones: An area of reduced vegetation that separates wildlands from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, Parks, or golf courses.

Bump-up Method: A progressive method of building a fire line on a wildfire without changing relative positions in the line. Work is begun with a suitable space between workers. Whenever one worker overtakes another, all workers ahead move one space forward and resume work on the uncompleted part of the line. The last worker does not move ahead until completing his or her space.

Burn Out: Setting fire inside a control line to widen it or consume fuel between the edge of the fire and the control line.

Burning Ban: A declared ban on open air burning within a specified area, usually due to sustained high fire danger.

Burning Conditions: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

Burning Index: An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

Burning Period: That part of each 24-hour period when fires spread most rapidly, typically from 10:00 a.m. to sundown.

C

Campfire: As used to classify the cause of a wildland fire, a fire that was started for cooking or warming that spreads sufficiently from its source to require action by a fire control agency.

Candle or Candling: A single tree or a very small clump of trees that is burning from the bottom up.

Chain: A unit of linear measurement equal to 66 feet.

Closure: Legal restriction, but not necessarily elimination of specified activities such as smoking, camping, or entry that might cause fires in a given area.

Cold Front: The leading edge of a relatively cold air mass that displaces warmer air. The heavier cold air may cause some of the warm air to be lifted. If the lifted air contains enough moisture, the result may be cloudiness, precipitation, and thunderstorms. If both air masses are dry, no clouds may form. Following the passage of a cold front in the Northern Hemisphere, westerly or northwesterly winds of 15 to 30 or more miles per hour often continue for 12 to 24 hours.

Cold Trailing: A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot, and trenching any live edge.

Command Staff: The command staff consists of the information officer, safety officer, and liaison officer. They report directly to the incident commander and may have assistants.

Complex: Two or more individual incidents located in the same general area, which are assigned to a single incident commander or unified command.

Contain a fire: A fuel break around the fire has been completed. This break may include natural barriers or manually and/or mechanically constructed line.

Control a fire: The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through this line.

Control Line: All built or natural fire barriers and treated fire edge used to control a fire.

Cooperating Agency: An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort; e.g., Red Cross, law enforcement agency, telephone company, etc.

Coyote Tactics: A progressive line construction duty involving self-sufficient crews that build fire line until the end of the operational period, remain at or near the point while off duty, and begin building fire line again the next operational period where they left off.

Creeping Fire: Fire burning with a low flame and spreading slowly.

Crew Boss: A person in supervisory charge of usually 16 to 21 firefighters and responsible for their performance, safety, and welfare.
Crown Fire (Crowning): The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

Curing: Drying and browning of herbaceous vegetation or slash.

D

Dead Fuels: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Debris Burning: A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble, or meadow burning.

Defensible Space: An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Deployment: See Fire Shelter Deployment.

Detection: The act or system of discovering and locating fires.

Direct Attack: Any treatment of burning fuel, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.

Dispatch: The implementation of a command decision to move a resource or resources from one place to another.

Dispatcher: A person employed who receives reports of discovery and status of fires, confirms their locations, takes action promptly to provide people and equipment likely to be needed for control in first attack, and sends them to the proper place.

Dispatch Center: A facility from which resources are directly assigned to an incident.

Division: Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of

the operations chief. A division is located with the Incident Command System organization between the branch and the task force/strike team.

Dozer: Any tracked vehicle with a front-mounted blade used for exposing mineral soil.

Dozer Line: Fire line constructed by the front blade of a dozer.
Drip Torch: Hand-held device for igniting fires by dripping flaming liquid fuel on the materials to be burned; consists of a fuel fount, burner arm, and igniter. Fuel used is generally a mixture of diesel and gasoline.

Drop Zone: Target area for air tankers, helitankers, and cargo dropping.

Drought Index: A number representing net effect of evaporation, transpiration, and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

Dry Lightning Storm: Thunderstorm in which negligible precipitation reaches the ground. Also called a dry storm.

Duff: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, leaves, and immediately above the mineral soil.

E

Energy Release Component (ERC): The computed total heat released per unit area (British thermal units per square foot) within the fire front at the head of a moving fire.

Engine: Any ground vehicle providing specified levels of pumping, water, and hose capacity.

Engine Crew: Firefighters assigned to an engine. The Fireline Handbook defines the minimum crew makeup by engine type.

Entrapment: A situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. These situations may or may not result in injury. They include "near misses."

Environmental Assessment (EA): EAs were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

Environmental Impact Statement (EIS): EISs were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis, and an array of action alternatives allowing managers to see the probable effects of decisions on the environment. Generally, EISs are written for large-scale actions or geographical areas.

Equilibrium Moisture Content: Moisture content that a fuel particle will attain if exposed for an infinite period in an environment of specified constant temperature and humidity. When a fuel particle reaches equilibrium moisture content, net exchange of moisture between it and the environment is zero.

Escape Route: A preplanned and understood route firefighters take to move to a safety zone or other low-risk area, such as an already burned area, previously constructed safety area, a meadow that won't burn, or natural rocky area that is large enough to take refuge without being burned. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

Escaped Fire: A fire that has exceeded or is expected to exceed initial attack capabilities or prescription.

Extended Attack Incident: A wildland fire that has not been contained or controlled by initial attack forces, and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander.

Extreme Fire Behavior: "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, and strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

F

Faller: A person who fells trees. Also called a sawyer or cutter.

Field Observer: Person responsible to the Situation Unit Leader for collecting and reporting information about an incident obtained from personal observations and interviews.

Fine (Light) Fuels: Fast-drying fuels, generally with comparatively high surface area-to-volume ratios, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Fingers of a Fire: The long narrow extensions of a fire projecting from the main body.

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast: Prediction of probable fire behavior, usually prepared by a Fire Behavior Officer, in support of fire suppression or prescribed burning operations.

Fire Behavior Specialist: A person responsible to the Planning Section Chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuel, weather, and topography.
Fire Break: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Cache: A supply of fire tools and equipment assembled in planned quantities or standard units at a strategic point for exclusive use in fire suppression.

Fire Crew: An organized group of firefighters under the leadership of a crew leader or other designated official.

Fire Front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

Fire Intensity: A general term relating to the heat energy released by a fire.

Fire Line: A linear fire barrier that is scraped or dug to mineral soil.

Fire Load: The number and size of fires historically experienced on a specified unit over a specified period (usually one day) at a specified index of fire danger.
fire management plan (FMP): A strategic plan that defines a program to manage wildland and prescribed fires, and documents the fire management program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Fire Perimeter: The entire outer edge or boundary of a fire.

Fire Season: 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resource values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities is regulated by state or local authority.

Fire Shelter: An aluminized tent offering protection by means of reflecting radiant heat and providing a volume of breathable air in a fire entrapment situation. Fire shelters should only be used in life-threatening situations, as a last resort.

Fire Shelter Deployment: The removing of a fire shelter from its case and using it as protection against fire.

Fire Storm: Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

Fire Triangle: Instructional aid in which the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) necessary for combustion and flame production; removal of any of the three factors causes flame production to cease.

Fire Use Module (Prescribed Fire Module): A team of skilled and mobile personnel dedicated primarily to prescribed fire management. These are national and interagency resources, available throughout the prescribed fire season, that can ignite, hold, and monitor prescribed fires.

Fire Weather: Weather conditions that influence fire ignition, behavior, and suppression.

Fire Weather Watch: A term used by fire weather forecasters to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

Fire Whirl: Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris, and flame. Fire whirls range in size from less than one foot to more than 500 feet in diameter. Large fire whirls have the intensity of a small tornado.

Firefighting Resources: All people and major items of equipment that can or potentially could be assigned to fires.

Flame Height: The average maximum vertical extension of flames at the leading edge of the fire front. Occasional flashes that rise above the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind or slope.

Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

Flaming Front: The zone of a moving fire where the combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front. Also called fire front.

Flanks of a Fire: The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

Flare-up: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

Flash Fuels: Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash that ignite readily and are consumed rapidly when dry. Also called fine fuels.

Forb: A plant with a soft, rather than permanent woody stem, that is not a grass or grass-like plant.

Fuel: Combustible material. Includes vegetation, such as grass, leaves, ground litter, plants, shrubs and trees that feed a fire. (See Surface Fuels.)

Fuel Bed: An array of fuels usually constructed with specific loading, depth and particle size to meet experimental requirements; also, commonly used to describe the fuel composition in natural settings.

Fuel Loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

Fuel Model: Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Fuel Moisture (Fuel Moisture Content): The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

Fuel Reduction: Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

Fuel Type: An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

Fusee: A colored flare designed as a railway-warning device and widely used to ignite suppression and prescription fires.

G

General Staff: The group of incident management personnel reporting to the incident commander. They may each have a deputy, as needed. Staff consists of operations section

chief, planning section chief, logistics section chief, and finance/administration section chief.

Geographic Area: A political boundary designated by the wildland fire protection agencies, where these agencies work together in coordination and effective utilization

Ground Fuel: All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust that normally support a glowing combustion without flame.

H

Haines Index: An atmospheric index used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire.

Hand Line: A fireline built with hand tools.

Hazard Reduction: Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

Head of a Fire: The side of the fire having the fastest rate of spread.

Heavy Fuels: Fuels of large diameter such as snags, logs, and large limb wood that ignite and are consumed more slowly than flash fuels.

Helibase: The main location within the general incident area for Parking, fueling, maintaining, and loading helicopters. The helibase is usually located at or near the incident base.

Helispot: A temporary landing spot for helicopters.

Helitack: The use of helicopters to transport crews, equipment, and fire retardants or suppressants to the fire line during the initial stages of a fire.

Helitack Crew: A group of firefighters trained in the technical and logistical use of helicopters for fire suppression.

Holding Actions: Planned actions required to achieve wildland prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions.

Holding Resources: Firefighting personnel and equipment assigned to do all required fire suppression work following fireline construction but generally not including extensive mop-up.

Hose Lay: Arrangement of connected lengths of fire hose and accessories on the ground, beginning at the first pumping unit and ending at the point of water delivery.

Hotshot Crew: A highly trained fire crew used mainly to build fireline by hand.

Hotspot: A particular active part of a fire.

Hotspotting: Reducing or stopping the spread of fire at points of particularly rapid rate of spread or special threat, generally the first step in prompt control, with emphasis on first priorities.

I

Incident: A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

Incident Action Plan (IAP): Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including: incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, and incident map.

Incident Command Post (ICP): Location at which primary command functions are executed. The ICP may be co-located with the incident base or other incident facilities.

Incident Command System (ICS): The combination of facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Incident Commander: Individual responsible for the management of all incident operations at the incident site.

Incident Management Team: The incident commander and appropriate general or command staff personnel assigned to manage an incident.

Incident Objectives: Statements of guidance and direction necessary for selection of appropriate strategy (ies), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed.

Infrared Detection: The use of heat sensing equipment, known as Infrared Scanners, for detection of heat sources that are not visually detectable by the normal surveillance methods of either ground or air patrols.

Initial Attack: The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

J

Job Hazard Analysis: This analysis of a project is completed by staff to identify hazards to employees and the public. It identifies hazards, corrective actions, and the required safety equipment to ensure public and employee safety.

Jump Spot: Selected landing area for smokejumpers.

Jump Suit: Approved protection suit worn by smokejumpers.

K

Keech Byram Drought Index (KBDI): Commonly used drought index adapted for fire management applications, with a numerical range from 0 (no moisture deficiency) to 800 (maximum drought).

Knock Down: To reduce the flame or heat on the more vigorously burning parts of a fire edge.

L

Ladder Fuels: Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Large Fire: 1) For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres. 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

Lead Plane: Aircraft with pilot used to make dry runs over the target area to check wind and smoke conditions, topography, and to lead air tankers to targets and supervise their drops.

Light (Fine) Fuels: Fast-drying fuels, generally with comparatively high surface area-to-volume ratios, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

Lightning Activity Level (LAL): A number, on a scale of 1 to 6, which reflects frequency and character of cloud-to-ground lightning. The scale is exponential, based on powers of 2 (i.e., LAL 3 indicates twice the lightning of LAL 2).

Line Scout: A firefighter who determines the location of a fire line.

Litter: Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Live Fuels: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

M

Micro-Remote Environmental Monitoring System (Micro-REMS): Mobile weather monitoring station. A Micro-REMS usually accompanies an incident meteorologist and ATMU to an incident.

Mineral Soil: Soil layers below the predominantly organic horizons; soil with little combustible material.

Mobilization: The process and procedures used by all organizations, federal, state and local for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.

Modular Airborne Firefighting System (MAFFS): A manufactured unit consisting of five interconnecting tanks, a control pallet, and a nozzle pallet, with a capacity of 3,000 gallons, designed to be rapidly mounted inside an unmodified C-130 (Hercules) cargo aircraft for use in dropping retardant on wildland fires.

Mop-up: To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags, or moving logs so they won't roll downhill.

Multi-Agency Coordination (MAC): A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.

Mutual Aid Agreement: Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

N

National Environmental Policy Act (NEPA): NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures

for environmental protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

National Fire Danger Rating System (NFDRS): A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Wildfire Coordinating Group: A group formed under the direction of the Secretaries of Agriculture and the Interior and comprised of representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and Association of State Foresters. The group's purpose is to facilitate coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend action, or resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

Nomex ®: Trade name for a fire resistant synthetic material used in the manufacturing of flight suits, pants, and shirts used by firefighters (see Aramid).

Normal Fire Season: 1) A season when weather, fire danger, and number and distribution of fires are about average. 2) Period of the year that normally comprises the fire season.

O

Operations Branch Director: Person under the direction of the operations section chief who is responsible for implementing that portion of the incident action plan appropriate to the branch.

Operational Period: The period of time scheduled for execution of a given set of tactical actions as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually not more than 24 hours.

Overhead: People assigned to supervisory positions, including incident commanders, command staff, general staff, directors, supervisors, and unit leaders.

P

Pack Test: Used to determine the aerobic capacity of fire suppression and support personnel, and assign physical fitness scores. The test consists of walking a specified distance, with or without a weighted pack, in a predetermined period of time, with altitude corrections.

Paracargo: Anything dropped, or intended for dropping, from an aircraft by parachute, by other retarding devices, or by free fall.

Peak Fire Season: That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.

Personnel Protective Equipment (PPE): All firefighting personnel must be equipped with proper equipment and clothing in order to mitigate the risk of injury from, or exposure to, hazardous conditions encountered while working. PPE includes, but is not limited to: 8-inch high-laced leather boots with lug soles, fire shelter, hard hat with chin strap, goggles, ear plugs, aramid shirts and trousers, leather gloves, and individual first aid kits.

Preparedness: Condition or degree of being ready to cope with a potential fire situation

Prescribed Fire: Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan (Burn Plan): This document provides the prescribed fire burn boss information needed to implement an individual prescribed fire project.

Prescription: Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, and environmental, geographic, administrative, social, or legal considerations.

Prevention: Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.
Project Fire: A fire of such size or complexity that a large organization and prolonged activity is required to suppress it.

Pulaski: A combination chopping and trenching tool, which combines a single-bitted axe-blade with a narrow adze-like trenching blade fitted to a straight handle. Useful for grubbing or trenching in duff and matted roots. Well-balanced for chopping.

R

Radiant Burn: A burn received from a radiant heat source.

Radiant Heat Flux: The amount of heat flowing through a given area in a given time, usually expressed as calories/square centimeter/second.

Rappelling: Technique of landing specifically trained firefighters from hovering helicopters; involves sliding down ropes with the aid of friction-producing devices.

Rate of Spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

Reburn: The burning of an area that has been previously burned but that contains flammable fuel that ignites when burning conditions are more favorable; an area that has reburned.

Red Card: Fire qualification card issued to fire rated persons showing their training needs and their qualifications to fill specified fire suppression and support positions in a large fire suppression or incident organization.

Red Flag Warning: Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.

Rehabilitation: The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

Relative Humidity (RH): The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

Remote Automatic Weather Station (RAWS): An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

Resources: 1) Personnel, equipment, services, and supplies available, or potentially available, for assignment to incidents. 2) The natural resources of an area, such as timber, crass, watershed values, recreation values, and wildlife habitat.

Resource Management Plan (RMP): A document prepared by field office staff with public participation, and approved by field office managers that provides general guidance and direction for land management activities at a field office. The RMP identifies the need for fire in a particular area and for a specific benefit.

Resource Order: An order placed for firefighting or support resources.

Retardant: A substance or chemical agent that reduces the flammability of combustibles.

Run (of a fire): The rapid advance of the head of a fire with a marked change in fire line intensity and rate of spread from that noted before and after the advance.

Running: A rapidly spreading surface fire with a well-defined head.

S

Safety Zone: An area cleared of flammable materials used for escape in the event the line is outflanked, or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas, which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

Scratch Line: An unfinished preliminary fire line hastily established or built as an emergency measure to check the spread of fire.

Severity Funding: Funds provided to increase wildland fire suppression response capability necessitated by abnormal weather patterns, extended drought, or other events causing abnormal increase in the fire potential and/or danger.

Single Resource: An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

Size-up: To evaluate a fire to determine a course of action for fire suppression.
Slash: Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps, and broken understory trees or brush.

Sling Load: Any cargo carried beneath a helicopter and attached by a lead line and swivel.

Slop-over: A fire edge that crosses a control line or natural barrier intended to contain the fire.

Smokejumper: A firefighter who travels to fires by aircraft and parachute.

Smoke Management: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

Smoldering Fire: A fire burning without flame and barely spreading.

Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Spark Arrester: A device installed in a chimney, flue, or exhaust pipe to stop the emission of sparks and burning fragments.

Spot Fire: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

Spot Weather Forecast: A special forecast issued to fit the time, topography, and weather of each specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely, and specific than zone forecasts.

Spotter: In smokejumping, the person responsible for selecting drop targets and supervising all aspects of dropping smokejumpers.

Spotting: Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

Staging Area: Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three-minute available basis. Staging areas are managed by the operations section.

Strategy: The science and art of command as applied to the overall planning and conduct of an incident.

Strike Team: Specified combinations of the same kind and type of resources, with common communications, and a leader.

Strike Team Leader: Person responsible to a division/group supervisor for performing tactical assignments given to the strike team.

Structure Fire: Fire originating in and burning any part or all of any building, shelter, or other structure.

Suppressant: An agent, such as water or foam, used to extinguish the flaming and glowing phases of combustion when direction applied to burning fuels with its discovery.

Surface Fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

Swamper: (1) A worker who assists fallers and/or sawyers by clearing away brush, limbs and small trees. Carries fuel, oil, and tools, and watches for dangerous situations. (2) A worker on a dozer crew who pulls winch line, helps maintain equipment, etc., to speed suppression work on a fire.

T

Tactics: Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

Temporary Flight Restrictions (TFR): A restriction requested by an agency and put into effect by the Federal Aviation Administration in the vicinity of an incident, which restricts the operation of nonessential aircraft in the airspace around that incident.

Terra Torch ®: Device for throwing a stream of flaming liquid, used to facilitate rapid ignition during burn out operations on a wildland fire or during a prescribed fire operation.

Test Fire: A small fire ignited within the planned burn unit to determine the characteristic of the prescribed fire, such as fire behavior, detection performance, and control measures.

Timelag: Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content. If conditions remain unchanged, a fuel will reach 95 percent of its equilibrium moisture content after four timelag periods.

Torching: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

Two-way Radio: Radio equipment with transmitters in mobile units on the same frequency as the base station, permitting conversation in two directions using the same frequency in turn.

Type: The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability due to power, size, or capacity.

U

Uncontrolled Fire: Any fire that threatens to destroy life, property, or natural resources,

Underburn: A fire that consumes surface fuels but not trees or shrubs. (See Surface Fuels.)

V

Vectors: Directions of fire spread as related to rate of spread calculations (in degrees from upslope).

Volunteer Fire Department (VFD): A fire department of which some or all members are unpaid.

W

Water Tender: A ground vehicle capable of transporting specified quantities of water.

Weather Information and Management System (WIMS): An interactive computer system designed to accommodate the weather information needs of all federal and state natural resource management agencies. Provides timely access to weather forecasts, current and historical weather data, the National Fire Danger Rating System (NFDRS), and the National Interagency Fire Management Integrated Database (NIFMID).

Wet Line: A line of water, or water and chemical retardant, sprayed along the ground, that serves as a temporary control line from which to ignite or stop a low-intensity fire.

Wildland Fire: Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP): A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits.

Wildland Fire Situation Analysis (WFSA): A decision-making process that evaluates alternative suppression strategies against selected environmental, social, political, and economic criteria. Provides a record of decisions.

Wildland Fire Use: The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in fire management plans.

Wildland Urban Interface: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Wind Vectors: Wind directions used to calculate fire behavior.

C.Species Lists

No state or federally listed species are currently known to exist within the park. If such species are discovered in the future, this document will be updated accordingly.

D.NEPA and NHPA Compliance

1.Environmental Assessment

A signed copy of the Martin Van Buren National Historic Site fire management plan environmental assessment is on file in the park fire coordinator's office.

2.Finding of No Significant Impact

A signed copy of the “Finding of No Significant Impact” of the environmental assessment for Martin Van Buren National Historic Site’s fire management plan is on file in the park fire coordinator's office.

E.Supplemental Park Information

1.Park Fire Staff and Fire Call-Up List

Name	Qualifications	Telephone
Jim McKay	FFT1, FFT2	518-784-3684 h 518-758-9689 w
Dawn Sackawitch	FFT2	518-672-5806 h 518-758-9689 w

2.Step-Up Staffing Plan

The step-up staffing plan describes additional staffing, preparedness activities, detection, and suppression strategies that are put in place as the local fire danger rating (see Table 9) increases from low to extreme. These activities are "stepped-up" as fire danger increases to ensure that appropriate detection and initial attack resources are available to protect public safety and park resources.

Preparedness activities during the fire season will be based on the NFDRS ratings for the Saratoga NHP fire weather station. Fire danger is broadly divided into five staffing classes, according to the intensity of danger factors, as indicated by the adjective rating or level.

The staffing classes relate to the expected difficulty of controlling a fire. The superintendent may choose to increase preparedness-staffing class by one level for unusual events that would increase the potential for wildland fire. Preparedness actions are based on the latest adjective rating and the next day's forecasted adjective rating.

Table 9. Fire Danger Rating

Adjective Rating	Staffing Level	Burning Index
Low	I	0 - 3
Moderate	II	4 - 8
High	III	9 - 17
Very High	IV	18 - 30
Extreme	V	31 +

Fire conditions that typify each staffing class and the corresponding preparedness actions required are as follows:

Staffing Classes I and II (Low/Moderate)

Conditions

Fires will present at low to moderate level of control difficulty. Fires occurring at this level may be controlled with existing forces (park staff and local fire departments). Wind speed and direction will determine speed of fire spread. Fine fuels are may be wet or re drying.

Preparedness activities will be funded through park ONPS accounts. Suppression activities and additional costs to "fill behind" staff dispatched to fires will be funded through the FIREPRO emergency suppression accounts.

Preparedness Actions

- Fire weather reviewed and reported daily.
- Hand tools and portable equipment in a state of readiness.

- Park fire staff annual training and certifications are current.

- Maintain staff and office capabilities to provide wildland fire, and prescribed fire application information (preparedness activities, purpose, size, location, status, restrictions on park use, etc.) to the public, the media and government agencies as appropriate.

Suppression Actions

- One qualified employee will depart within five minutes of a reported fire for the fire location.

- Additional attack forces will be dispatched as needed after size-up and upon request of the first firefighter to arrive on scene.

- If necessary, cooperator assistance will be requested from local fire departments or other sources.

Staffing Class III (High)

Conditions

Fires will present a moderate level of control difficulty. Light fuels are becoming dry. Heavy fuels are drying. Mop-up may be more difficult and time-consuming.

Preparedness Actions

- All actions specified for staffing class I and II days will be conducted.

- Ensure that a minimum of one qualified firefighter is available for initial attack during normal working hours.

- Park field staff may be notified of increased fire danger.

- Park staff may be asked to survey visible areas of the park to detect wildland fire ignitions from their normal duty stations.

Suppression Actions

All suppression actions indicated for staffing classes I and II will be taken.

- Additional attack forces will be dispatched after size-up and upon request of the first firefighter to arrive on scene or, at the discretion of superintendent or fire management coordinator immediately.

Staffing Classes IV and V (Very High and Extreme)

Conditions

Fire will present a moderate to high level of control difficulty. Initial attack and reinforcing crews may have difficulty controlling a fire at this level. All fuels are dry. Air temperature is high and humidity is low. Strong gusty winds are possible. Spotting may occur.

Preparedness Actions

- All actions specified for staffing class III days will be conducted.
- Fire situation reports will be reported to the Area FMO by 9:30 A.M daily.
- Park staff will be notified of the very high or extreme fire danger and asked to increase their level of fire detection effort.
- Visitor center personnel will alert the public to fire hazards.
- Interpretive activities will include a fire safety message.
- FIREPRO emergency preparedness funds may be used to bring staff to required levels. However, regularly scheduled personnel will be used to the extent possible.
- Nonessential routine activities and project work may be postponed, at the discretion of the superintendent, to ensure adequate preparedness and fire staffing levels.
- Fire danger notices will be posted.
- Sections of the park may be closed to preserve the safety of visitors and to protect park resources.
- Park staff may be stationed in the park to detect wildland fire ignitions. Detection activities may be extended outside of normal work hours.
- Park fire staff may be placed on-call to respond to reports of wildland fire within the park.

Suppression Actions

All actions specified for staffing class III days will be taken.

- Additional attack forces will be dispatched immediately following the report of a wildland fire.

3.Cooperative Agreements

FIRE AND AVIATION MANAGEMENT SERVICES
INTERPARK AGREEMENT

Between

Acadia National Park

and

Fort Stanwix National Monument

Marsh-Billings-Rockefeller National Historical Park

Martin Van Buren National Historic Site

Roosevelt-Vanderbilt National Historic Sites

Saint-Gaudens National Historic Site

Saratoga National Historical Park

Weir Farm National Historic Site

Women's Rights National Historical Park

ARTICLE I: Background and Objectives

This Interpark Agreement is entered into, by and between Acadia National Park, hereinafter referred to as "ACAD" and Fort Stanwix National Monument, hereinafter referred to as "FOST", Marsh-Billings-Rockefeller National Historical Park, hereinafter referred to as "MABI", Martin Van Buren National Historic Site, hereinafter referred to as "MAVA", Roosevelt-Vanderbilt National Historic Sites, hereinafter referred to as "ROVA", Saint-Gaudens National Historic Site, hereinafter referred to as "SAGA", Saratoga National Historical Park, hereinafter referred to as "SARA", Weir Farm National Historic Site, hereinafter referred to as WEFA, and Women's Rights National Historical Park, hereinafter known as WORI. The aggregate of these nine parks are hereinafter referred to as the "North Country Area".

These nine parks, along with Saint Croix International Historical Park and portions of the Appalachian National Scenic Trail, comprise the North Country Area and are also designated as the "North Country Park Group" (NOCOPG) by the National Park Service Fire Management Program Center in Boise, Idaho. The Superintendent of

ACAD administers Saint Croix International Historical Park. Those portions of the Appalachian National Scenic Trail that lie within the states of Maine, Massachusetts, Connecticut and New York, hereinafter referred to as AAPPA@, are joined to the North Country Area under a separate interpark agreement between the superintendents of ACAD and APPA.

Acadia National Park is assigned two permanent, full-time fire management positions; a fire management officer and a fire program assistant, and one permanent, subject-to-furlough fire management position; a fire control aid. These positions were established based upon the fire management program workload of the park as determined in the FIREPRO III analysis by the National Park Service, hereinafter referred to as "NPS". The other ten parks of the North Country Area are located in northern New England and New York and have no permanent FIREPRO funded fire management positions.

At certain times of each year, accomplishment of specific fire and aviation management objectives (FIREPRO budget submission, project planning, fire management planning, fire prevention, wildland fire preparedness and suppression operations, capitalized equipment requests, training requests, prescribed fire planning and implementation, aviation operations and management, and coordination with local, state and federal agencies) requires expertise and time allocations that may not be available in each park. Assistance can be provided by the Northeast Region fire management officer to accomplish these objectives, but demands by other regional, national, and interagency activities frequently preclude visits and time allotments for completion of tasks related to park fire and aviation management programs.

To alleviate this situation, parks with FIREPRO funded fire management officers provide the first level of technical assistance to other parks within a specific geographic area. This provides greater capability for each park to fully complete their specific fire and aviation management planning and implement the desired fire and aviation management programs and operations.

Superintendents and park managers are responsible for implementation of all fire and aviation management activities within their parks. This Interpark Agreement does not relieve superintendents and park managers of these duties, nor does it abolish the need for park fire coordinators.

The purpose of this Interpark Agreement is to:

Establish a complex of parks in northern New England and New York where the fire management personnel from ACAD provide specialized technical assistance to other parks in the North Country Area for the accomplishment of their fire and aviation management objectives. For the purposes of this agreement, the ACAD fire management officer is designated as the North Country Area fire management officer. Specific responsibilities and roles are described in the following section.

ARTICLE II: Responsibilities

The permanent duty station for the ACAD fire management personnel is Acadia National Park in Bar Harbor, Maine.

Professional fire and aviation management technical assistance is desirable under this Interpark Agreement. The performance of these responsibilities will be based on an annual work plan provided for all parks, coordinated with chief rangers at each park and through the chief ranger and the fire management officer at ACAD, in consultation with the superintendent at ACAD. Specific responsibilities of the ACAD fire management officer and fire program assistant include but are not limited to:

A. ACAD Fire Management Program

1. Coordinate all wildland and structural fire prevention, preparedness, and suppression activities with appropriate park staff and cooperating agencies.

2. Supervise the park's permanent fire control officer and assigned FIREPRO permanent and seasonal employees.

3. Coordinate all fire reports, related correspondence, and prepare revisions of the park's fire management plan.

4. Coordinate and implement the park's prescribed fire program based on park's fire management plan and resource management plan.

5. Coordinate and implement the park's hazard fuels reduction program based on park's fire management plan and resource management plan.

6. Coordinate in-park fire dispatches and out-of-park fire assignments with the Eastern Interagency Coordination Center (EICC), located at Shenandoah National Park in Luray, Virginia.

7. Conduct training to meet in-park needs and provide training information for overhead development.

8. Prepare budget submissions for and track expenditures of fire prevention, fire preparedness, fire suppression, fire management, fire monitoring, hazard fuels reduction, prescribed fire projects, fire training, and capital equipment funds.

9. Maintain qualifications and training records in the NPS Wildland Fire Management Computer System for ACAD.

10. Identify fire research needs and coordinate research projects related to the park's fire management program.

11. Coordinates the parks aviation management program.

B. Assistance to North Country Area Parks

1. Review and provide technical assistance in park preparation of fire management plans and participate in fire management planning teams as requested.

2. Provide assistance in coordinating fire and aviation management programs and operations with cooperating local, state and federal agencies.

3. Provide assistance in developing and maintaining fire and aviation management related memorandums of understanding and interagency agreements with local, state and other federal agencies.

4. Conduct specialized training as necessary to meet wildland fire suppression, prescribed fire and aviation operation needs of the park and interagency needs according to approved fire management plans, North Country Area, regional, and national guidelines. Advise parks in their coordination of in-park basic fire suppression training.

5. Coordinate out-of-park mobilization through appropriate mobilization centers.

6. Maintain qualification and training records in the NPS Wildland Fire Management Computer System for North Country Area parks, including; initial record input, medical records, and personnel experience and training records for all fire qualified personnel.

7. Individually, and with others, represent North Country Area parks at meetings, conferences, and other functions as needed.

8. Provide technical assistance in the development and implementation of prescribed fire and other fire management projects based on the individual park's fire management plan,

9. Provide advice and technical assistance to the parks in preparing budget submissions for FIREPRO funding.

10. Assist the Northeast Region fire management officer by prioritizing and consolidating fire training requests and in reviewing and recommending capital equipment and other funding requests for all parks covered by this Interpark Agreement prior to submission to the NPS Fire Management Program Center.

11. Provide technical assistance in submission of fire reports and other data into the Wildland Fire Management Computer System, as needed.

ARTICLE III: Supervision

The ACAD chief ranger directly supervises the ACAD fire management officer and will develop appropriate performance standards to reflect annual work plan goals of ACAD and the other parks. To do so, the ACAD chief ranger will regularly request input from superintendents, chief rangers, and resource management specialists from all involved parks.

ARTICLE IV: Interpark Coordination

Meetings will be held, as necessary, to review fire management accomplishments and to outline future fire management activities and goals for the North Country Area parks. Meetings will be attended by the North Country Area fire management officer, designated representatives from North Country Area parks and from the Northeast Region as desired.

ARTICLE V: Funding

Program costs (travel and per diem, communications, supplies and materials, etc.) incurred by the ACAD fire management officer in carrying out normal duties within ACAD and the North Country Area parks will be charged against ACAD FIREPRO accounts allocated for these purposes. Additional funding needs will be requested by ACAD through the FIREPRO budgeting process and the Northeast Region fire management officer.

ARTICLE VI: Term of Agreement

The term of this agreement will be for five (5) years from the date on which this agreement was entered into. It will be renewable at the end of each five-year period by written amendment signed by the superintendent of ACAD and the superintendents of the other North Country Area parks.

ARTICLE VII: Amendments

Amendments to this agreement can be made at any time, subject to the written approval of the superintendent of ACAD and the superintendents of the other North Country Area parks.

ARTICLE VIII: Reports

The ACAD fire management officer will supply trip reports and other reports upon request including situation reports, weather reports, personnel fire information, or other reports to North Country Area parks as requested.

4.Preparedness Inventory

Fire equipment	Number	Comments
Pulaski	5	
Shovel	5	
McCloud	5	
Council rake	5	
Backpack pump	2	
PPE	3	complete set/individual

5.Limited Delegation of Authority

LIMITED DELEGATION OF AUTHORITY

To: _____, Incident Commander

From: Superintendent, Martin Van Buren National Historic Site

Subject: Limited Delegation of Authority

As of _____hours, on this date _____, I have delegated limited authority to manage the _____ fire at the Martin Van Buren National Historic Site.

As Superintendent I have ultimate responsibility for protection of the Martin Van Buren National Historic Site's resources and the lives of the site's visitors and employees. Your expertise in the area of wildland fire incident management will assist me in fulfilling that responsibility during the present situation. My considerations for management of this fire are:

1. Provide for firefighter, visitor, resident and neighbor safety.

2. I would like the fire managed using the most appropriate strategy that foremost considers, safety, economic cost, and probability of success and consequences of failure. The selected strategy should be implemented using minimum impact management tactics.

3. Key cultural features requiring priority protection are:
_____
_____
_____

4. Key resource considerations are:
_____
_____
_____

5. Restrictions for suppression actions are: no tracked or wheeled vehicles in the following
areas:_____
_____
_____

except when human life is at immediate risk. Helicopters, fixed wing aircraft, powersaws, portable pumps and leaf blowers may be used as required. Chemical retardant and Class A foam use is authorized as stipulated in the Site's fire management plan.

6. My agency advisor/representative will be:

7. Manage the fire cost effectively for the values at risk.

8. Provide training opportunities for National Park Service and local firefighters to the extent possible.

9. Minimize disruption of visitor access to the Site consistent with pubic safety.

_____
Superintendent, Martin Van Buren National Historic Site

Date:_____

F.Wildland and Prescribed Fire Monitoring Plan

Fire Effects Monitoring Plan
Martin Van Buren National Historic Site

Monitoring is a key component of all aspects of fire management at MAVA. It informs fire planning, preparedness, implementation, suppression, and rehabilitation. Monitoring is essential to assess the accomplishments of the fire management program and to determine the effects of wildland fire, fire use, and prescribed fire use on park resources. The fire monitoring program at MAVA follows the guidelines and protocols described in the NPS Fire Monitoring Handbook and DO-18.

The MAVA fire monitoring program includes the four level of monitoring described in the NPS Fire Monitoring Handbook:

- Environmental/planning
- Fire observation
- Short-term change
- Long-term change

These monitoring levels and the activities MAVA is taking to achieve effective fire monitoring are described below:

Level 1 Monitoring – Environmental/ Planning

Level 1 monitoring provides for gathering the background data needed to make informed strategic and tactical decisions on wildland fires and prescribed fires. This process includes resource inventory, researching historic documents and data, and collecting fuel and weather data. Level 1 monitoring provides the basis for fire planning and developing decision criteria for fire management. Level 1 monitoring data includes:

- Pre-fire (baseline condition) monitoring
- Fire history
- Fire regimes
- Weather patterns and extremes
- Fuel and fire behavior models
- Location and status of values to be protected

- Other information needed to understand the park's fire situation.

For level 1 monitoring to be fully effective in providing park managers with useful comparative data, pre-burn monitoring data must be collected.

Level 1 monitoring is an interdisciplinary program of information gathering that involves all divisions in the park. Level 1 monitoring is an on-going part of the resource management program at MAVA.

Level 1 monitoring data is found in the fire management plan, the environmental assessment associated with the FMP, the resource management plan, the draft GMP, weather data from the parks fire weather observation station (NYzzSARA), park fire records, and in other documents and databases.

Level 1 data is managed by the chief ranger's office. The park fire management coordinator will make Level 1 data available to the incident commander and other fire management staff as needed.

Access to some Level 1 information (location of archeological sites, location of rare or sensitive species, or other data the could lead to injury to a sensitive resource) may be restricted to upper level fire managers or fire staff working on-site. Park staff will provide the incident commander all available information needed to make informed fire management and resource protection decisions.

Level 2 Monitoring - Fire Observation

Level 2 monitoring is the direct observation of a fire to inform decisions on the appropriate management response to the fire. All fires that have the potential to threaten values to be protected will be monitored by direct observation. This includes wildland fires and prescribed fires.

Level 2 monitoring provides a basic overview of the fire by documenting fire events, fire and smoke behavior, and the fire situation throughout the life of the fire. Data including:

- Weather conditions
- Fire behavior (flame-length, rate of spread, fire intensity, fire residence time, etc.)
- Smoke behavior (volume, density, direction of spread, etc.)

will be recorded and reported on form DI-1202. Data from these forms will be entered into the NPS fire database.

Level 2 monitoring will be conducted by qualified fire management staff and will follow all applicable NPS guidelines. Level 2 monitoring data will be used to complete WFSA, WFIPs, and other appropriate fire reports.

Level 3 Monitoring - Short-Term Change

Level 3 monitoring records post-fire information on:

- Fuels and changes in fuel characteristics (fuel types, fuel density, fuel reduction, etc.)
- Short-term vegetation change (within 1 year of fire) within a fuel complex/plant community
- Burned area rehabilitation needs related to soil erosion
- Any other information on short-term changes in resource condition needed to determine if management objectives of the fire program are being achieved.

Level 3 monitoring is typically completed within one-year following the incident (one post-fire growth season). In some rare cases Level 3 monitoring may be continued for several years.

For level 3 monitoring to be fully effective in providing park managers with useful comparative data, pre-burn and post-burn monitoring data must be collected.

Level 3 monitoring is required for each prescribed fire unit. Specific monitoring protocols and objective will be described in each prescribed fire burn plan.

The intensity of level 3 monitoring may vary. Some burn areas will require intensive and extensive sampling (ex. research fires, fires burning in sensitive species habitat, etc.). Other burn areas will require only limited data collection (ex. hazard fuel reduction areas). In all cases, monitoring intensity will be appropriate to meet management goals, document resource condition, and will follow NPS Fire Monitoring Handbook guidelines and protocols.

Level 4 Monitoring - Long-Term Change

Level 4 monitoring attempts to identify and document significant changes or trends related to fire or fire absence over long periods of time (>1 year - >10 years). Many fire effects, such as changes in the composition of plant communities, that may not be detectable during short-term monitoring, can be documented using long-term monitoring.

All prescribed burn units will receive level 4 monitoring. Monitoring protocols for prescribed burn units will be described in the individual prescribed fire burn plans. Areas will receive level 4 monitoring as appropriate to meet management goals. Level 4

monitoring of burned areas will normally be achieved by continuing level 3 monitoring protocols for an extended period.

For level 4 monitoring to be fully effective in providing park managers with useful comparative data, pre-burn and post-burn monitoring data must be collected.

The intensity of level 4 monitoring may vary. Some burn areas will require intensive and extensive sampling (ex. research fires, fires burning in sensitive species habitat, etc.). Other burn areas will require only limited data collection (ex. hazard fuel reduction areas). In all cases, monitoring intensity will be appropriate to meet management goals, document resource condition, and will follow NPS Fire Monitoring Handbook guidelines and protocols.

Fire Monitoring Protocols

MAVA will follow the fire monitoring protocols based on the NPS Fire Monitoring Handbook for all levels of fire monitoring. The monitoring protocols used by the park will be reviewed and approved at the regional office level.

The monitoring objectives and protocols for the permanent monitoring plots established in fields throughout MAVA are described below.

MONITORING OBJECTIVES FOR PERMANENT FIRE MONITORING PLOTS:

The MAVA monitoring program has been designed and implemented to achieve:

- At least 80% confidence that post-fire monitoring will detect a 70% decrease in the mean density of woody stems by the fourth year post-burn.

- At least 80% confidence that post-fire monitoring will detect a 20% reduction in mean non-native species density four years after the application of prescribed fire.

- At lease 80% confidence that monitoring will detect an increase in the mean density of native herbaceous species by 20% by the fourth year post-burn.

METHODS:

Establishing Plot Locations and Installing Plots

Points will be randomly located in fields targeted for the application of prescribed fire. Points were located using a GPS unit. Once at the randomly located point, the area will be checked against the rejection criteria (areas within 30 meters of roads, burn unit boundaries, human-made trails, clearings, mowed areas or historic structure). Monitoring plots will be established at all accepted points.

Monitoring plots will be marked by installing two 0.5-inch diameter pieces of rebar 30.3 meters apart on a random bearing. The rebar marks the end-points of the monitoring plot and are labeled 0P and 30P respectively. Plots will be further documented by stretching a 30-meter tape between the two pieces of rebar and taking 35mm slide photographs (28mm lens) of the plot from both ends of the plot.

Plot locations will be documented in the park's GIS database and in park resource management files. This documentation includes bearing recorded from permanent structures.

Collecting and Recording Plot Data

Plot data is gathered using a point-intercept method. A tape graduated in meters/decimeters is stretched between the two pieces of rebar that mark the plot location. A ¼ in diameter pole, graduated in decimeters, is dropped every .3 meters along the tape for 100 points. At each "point intercept" each species that touches the pole is recorded on a FMH-16 data sheet. Each species is counted only once at each point intercept even if the pole touches it more than one individual. The height of the tallest individual of each species at each point intercept is recorded. If the pole fails to intercept any vegetation, the substrate is recorded.

Plant species that are found within the 1 meter area on either side of the tape that are not intercepted are recorded as present but not intercepted.

Woody species are counted using a 1-meter by 30-meter plot along the right side of the tape (A) and in two ½ meter by 30 meter plots along the left side of the tape (B) and (C). Species are counted at five-meter intervals recording data by species, age class, live or dead and number of individuals. Data is recorded in the FMH-17 data sheet.

All data collected during monitoring will be entered into the fire effects assessment tool database. The fire effects tool software will be used to analyze the data to determine if monitoring objectives have been met.

REFERENCES:

Karanosky, M. 06/30/2003. Email of Monitoring Protocols used at SARA Millisa

Karanosky (Lead Fire Effects Monitor, Shenandoah National Park) to Bill Fuchs (Biologist, NPS Northeast Regional Office).

USDI National Park Service. 2001. Fire Monitoring Handbook. Boise , Idaho: National Interagency Fire Center. 274p.

G.Pre-Attack Plan

Due to the limited risk of fires large enough to warrant extended attack, no formal pre-attack plan has been written. The pre-attack checklist (Wildland Fire Management Reference Manual 18, Chapter 7, Exhibit 3) has been reviewed and park staff have identified and documented all critical elements described in the checklist. The park fire management officer maintains this information.

G.Long-Term Prescribed Fire and Hazard Fuel Reduction Plan

The MAVA long-term fuels management program includes prescribed fire use and non-fire applications for landscape management, hazard fuel reduction, invasive species control, and habitat management.

Prescribed fire is typically applied during the spring fire season. Prescribed fire may be applied during any season. Prescribed fire is typically applied to individual burn units on a three-year cycle. There may be significant variation in the cyclic application of prescribed fire to an individual burn unit depending on management and resource management priority and direction.

Hazard fuels are typically managed as they accumulate or as part of the park's cyclic maintenance program. Mowing to control grasses and other herbaceous fuel occurs throughout the growing season. Fallen leaves are raked or vacuumed in the autumn. Dead and downed wood and hazard trees are removed from areas of the park on a cyclic basis throughout the year. All fuels around buildings and other sensitive infrastructure are removed when they accumulate sufficiently to create a hazard to real property, historic resources, or human health and safety.

The goals and objectives of the fuels management program are to:

- Preserve and maintain the historic landscape by burning historic fields and vistas.
- Control exotic and invasive species.
- Conduct all prescribed fire activities so that no firefighters are injured and public safety is preserved.
- Ensure that smoke is managed so that air quality is preserved and threshold criteria in restricted burning permits are not exceeded.
- Ensure that smoke is managed to minimize impacts to visibility on roadways within and adjacent to the park and, if smoke does cross these roadways, that impacted roads are managed for public safety.
- Ensure that real property adjacent to the park and within the park are protected from fire impacts and impacts from fire suppression activities.
- Ensure that natural and cultural resources and values to be protected within and adjacent to the park are appropriately protected from fire impacts and impacts from fire suppression activities. Resources that will receive special attention include threatened and endangered species, sensitive habitats, erosive soils, archeological resources, historic structures, and historic landscapes.

- Ensure that a fire monitoring program identifies and, where appropriate, mitigates impacts to park resources such as inappropriately altering plant communities and increasing actual or potential soil erosion.

- Reduce fuel loading to reduce risk of wildland fire ignition, reduce the intensity of wildland fires that do occur, and reduce potential fire damage to park resources.

These goals and objectives support the goals of the MAVA RMP and GMP.

Hazard fuels at MAVA are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), or other mechanical or cultural means. Fire is occasionally used to reduce or otherwise manage hazard fuels.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal.

During periods of very high or extreme fire danger, fire in any fuel type could display rapid spread rates and large flame lengths. Under these conditions virtually all fuels can be considered as hazard fuels because of the high potential for the ignition and spread of wildland fire. When fire danger is very high or extreme, hazard fuels throughout the park may be managed by limiting potential sources of ignition (open fires, sparks from automobiles, black powder demonstrations, etc.), by limiting public access to portions of the park, limiting park directed activities, and/or by increased fire detection activity (see park step-up plan for more details).

H.Multi-Year Prescribed Fire Schedule

A prescribed fire schedule will be developed by the park and inserted here when completed.

I.Hazard Fuels Reduction Projects Map and Schedule

A hazard fuels reduction projects map and schedule will be developed by the park and inserted here when completed.

K. Fire Prevention Plan

At this time it is not felt that a separate prevention plan is needed at the park. Prevention and public awareness are addressed in the main body of this plan. If a prevention plan is developed in the future, it will be inserted here.

L. Rental Equipment Agreements

MAVA does not maintain any fire-related rental equipment agreements.

M. Contracts for Suppression and Prescribed Fire Resources

MAVA does not maintain any fire suppression or prescribed fire contracts.

N. Burned Area Emergency Stabilization and Rehabilitation Plan

Due to the limited risk of large, high intensity fires or other incidents that are likely to create a recurring need for emergency burned area stabilization or rehabilitation, park management has determined that a park-wide burned area emergency stabilization and rehabilitation is not needed. If emergency stabilization or rehabilitation is required, a project specific burned area emergency stabilization and rehabilitation plan will developed.

O. Supplemental Information

1.Authorities for Implementing the MAVA Fire Management Plan

a. The National Park Service Organic Act of 1916

Authority for carrying out a fire management program at MAVA originates with the NPS Organic Act of 1916 (16 U.S.C. 1 -4). This act, known as the National Park Service Organic Act, created the National Park Service. The Organic Act states that the fundamental purpose of all "[national] parks monuments, and reservations… is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

b. The General Authorities Act of 1970

The General Authorities Act of 1970 (16 U.S.C. 1a et seq.) act affirms that all national park sites, while "distinct in character," are "united through their inter-related purposes and resources into one national park system as cumulative expressions of a single national heritage." This act explicitly states that the NPS organic act and other mandates protecting natural and cultural resources apply equally to all sites in the national park system. This law clarifies the authority for parks primarily established to preserve natural resources to suppress fire to preserve both natural and cultural resources and for parks established primarily to preserve historical resources to use of fire to manage both cultural and natural resources.

c. The National Parks & Recreation Act of 1978

The National Parks & Recreation Act of 1978 amended NPS general authorities to mandate that all park units be managed and protected "in light of the high public value and integrity of the National Park System". The act further mandates that no activities should be undertaken "in derogation of the values and purposes for which these various areas have been established," except where specifically authorized by law. This law limits the authority of parks to undertake activities that will impair park resources and mandates that the NPS manage parks to preserve park resources. Under this law, suppression of wildland fire and use of prescribed fire are appropriate activities where they are used to protect park resources.

Additional authorities for the development of this plan and the management and use of fire within the park come from the park's enabling legislation and legislation to expand the park's boundaries:

d. An Act to Establish Martin Van Buren National Historic Site

88 STAT 1461

To provide for the establishment of the Clara Barton National Historic Site, Maryland; John Day Fossil Beds National Monument, Oregon; Knife River Indian Villages National Historic Site, North Dakota; Springfield Armory National Historic Site, Massachusetts; Tuskegee Institute National Historic Site, Alabama; Martin Van Buren National Historic Site, New York; and Sewall-Belmont House National Historic Site, Washington, District of Columbia; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I

Sec. 101. (a) Unless otherwise provided hereafter, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized to acquire by purchase with donated or appropriated funds, donation, exchange, or by transfer from another Federal agency such lands and interests in lands as hereafter provided for establishment as units of the national park system as follows:

6) for establishment as the Martin Van Buren National Historic Site, numbered NHS-MAVA-91,001, which shall include the home of Martin Van Buren, eighth President of the United States, Martin Van National Van Buren National Historic Site, New York N.Y. and dated January 1974.

16 USC 461 Note:

(b) The Secretary may also acquire personal property associated with the areas referred to in subsection (a) of this section. Lands and interests therein owned by a State or any political subdivision thereof which are acquired for the purposes of subsection (a) of this section may be acquired only by donation.

Sec. 102. (a) When the Secretary determines that an adequate interest in lands has been acquired to constitute an administrable unit for each of the areas described in section 1 of this Act, he may, after notifying the Committees on Interior and Insular Affairs of the United States Congress of his intention to do so at least fourteen days in advance, declare the establishment of such unit by publication of a notice to that effect in the Federal Register. Such notice shall contain a map or other description of the boundaries of the unit, together with an explanation of the interests acquired and the costs incident thereto.

The Secretary may refrain from acquiring property for establishment of any unit authorized by this Act where, in his judgment, satisfactory agreements or

donations with respect to properties which are needed for the protection and administration of a particular unit have not been consummated with the owners of such properties.

(b) Pending the establishment of each unit and, thereafter, the Secretary shall administer the property acquired pursuant to this Act in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented, and, to the extent applicable, the provisions of the Act of August 21, 1935 (49 Stat. 666), as amended.

Sec. 104. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act, not to exceed, however, the following:

f) Martin Van Buren National Historic Site, $213,000 for acquisition of lands and interests in lands and $2,737,000 for development.

Approved October 26, 1974

2.Other Federal Wildland Fire Policy Guidance

Between 2000 and 2002 the Federal government issued several key documents that inform wildland fire management at MAVA and other NPS sites (see below). The concepts and policies described in these documents have been incorporated into this plan.

a. Managing the Impacts of Wildfires on Communities and The Environment

Managing the Impacts of Wildfires on Communities and the Environment is a presidential report that provides recommendations to the Department of Agriculture (USDA) and the Department of the Interior (DOI) that include:

- Providing additional firefighting resources
- Restoring damaged landscapes and communities
- Increasing investment to reduce wildland fire risk
- Working directly with local communities to improve community fire-fighting capacity and coordination, implement restoration and fuel reduction projects, and expand education and risk mitigation at the wildland-urban interface.

This report provided the conceptual framework for the documents listed below.

24. National Fire Plan

The *National Fire Plan* describes a long-term strategy to manage wildland fire and its impacts to communities and ecosystems, and to reduce wildland fire risks. The strategy focuses on:

- Improving wildland fire preparedness
- Restoring and rehabilitating burned areas
- Reducing hazardous fuels
- Assisting communities
- Researching needs

25. 10-Year Comprehensive Strategy

The *10-Year Comprehensive Strategy* is a ten-year strategy to comprehensively manage wildland fire, hazardous fuels, and ecosystem restoration on federal and adjacent state, tribal, and private lands. The primary goals of the strategy are to:

- Improve wildland fire prevention and suppression

- Reduce hazardous fuels
- Restore fire-adapted ecosystems
- Promote community assistance

26. Implementation Plan, 10-Year Comprehensive Strategy

The *Implementation Plan* of the *10-Year Comprehensive Strategy* identifies 22 specific tasks the DOA/DOI should undertake to achieve the goals identified in the *10-Year Comprehensive Strategy.* The strategy emphasizes a collaborative, community-based approach.

3.Fire Management Related Text From NPS Management Policies

National Park Service Management Policies include the following guidance related to the preparation of fire management plans and the management of fire on national park sites:

...park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised. (NPS Management Policies, Chapter 4.5)

Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park's natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. An environmental assessment developed in support of the plan will consider the effects on air quality, water quality, health and safety, and natural and cultural resource management objectives. Preparation of the plan and environmental assessment will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments. (NPS Management Policies, Chapter 4.5)

All fires burning in natural or landscaped vegetation in parks will be classified as either wildland fires or prescribed fires. All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options. These options will be selected after comprehensive consideration of the resource values to be protected, firefighter and public safety, and costs. Prescribed fires are those fires ignited by park managers to achieve resource management and fuel treatment objectives. Prescribed fire activities will include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All parks will use a systematic decision-making process to determine the most appropriate management strategies for all unplanned ignitions, and for any prescribed fires that are no longer meeting resource management objectives. (NPS Management Policies, Chapter 4.5)

There may be situations in which an area may be closed to visitor use to protect the natural resources (for example, during an animal breeding season) or for reasons of public safety (for example, during a wildland fire). Such closures may be accomplished under the superintendent's discretionary authority, and will comply with applicable regulations (36 CFR 1.5 and 1.7). (NPS Management Policies, Chapter 4.1)

Prepared for:

Martin Van Buren National Historic Site

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